REPORT RESUMES

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TRANSPORTATION LONG AGO.

GEORGE WASHINGTON UNIV., WASHINGTON, D.C.

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DESCRIPTORS- *HIGH INTEREST LOW VOCABULARY BOOKS, *READING, *TRANSPORTATION, PHOTOGRAPHS, ILLUSTRATIONS, *PREVOCATIONAL EDUCATION,

THIS HISTORICAL REVIEW OF TRANSPORTATION REPRESENTS AN EXPERIMENTAL BOOKLET OF ILLUSTRATIONS AND SINGLE TEXT FOR USE BY TEACHERS TO STIMULATE INTEREST IN READING AND IN RELATED MECHANICAL SUBJECT MATTER AREAS. IT AIMS TO HELP YOUNG PEOPLE LEARN BASIC PRINCIPLES AND CONCEPTS OF MECHANICS AND TECHNOLOGY. PHOTOGRAPHS AND ILLUSTRATIONS, SELECTED FROM THE 1900 TO 1918 ISSUES OF THE "SCIENTIFIC AMERICAN," SHOW AIRPLANES, TRAINS, AUTOMOBILES, SHIPS, BALLOONS, DIRIGIBLES, HELICOPTERS, RIFLES, BULLETS, AND FIRE ENGINES OF THAT PERIOD. ADVERTISEMENTS FOR AUTOMOBILES ARE ALSO GIVEN. THE SIZE OF THE BOOKLET IS 11 INCHES X 17 INCHES. RELATED DOCUMENTS ARE VT 004 454 THROUGH VT 004 471. (EM)

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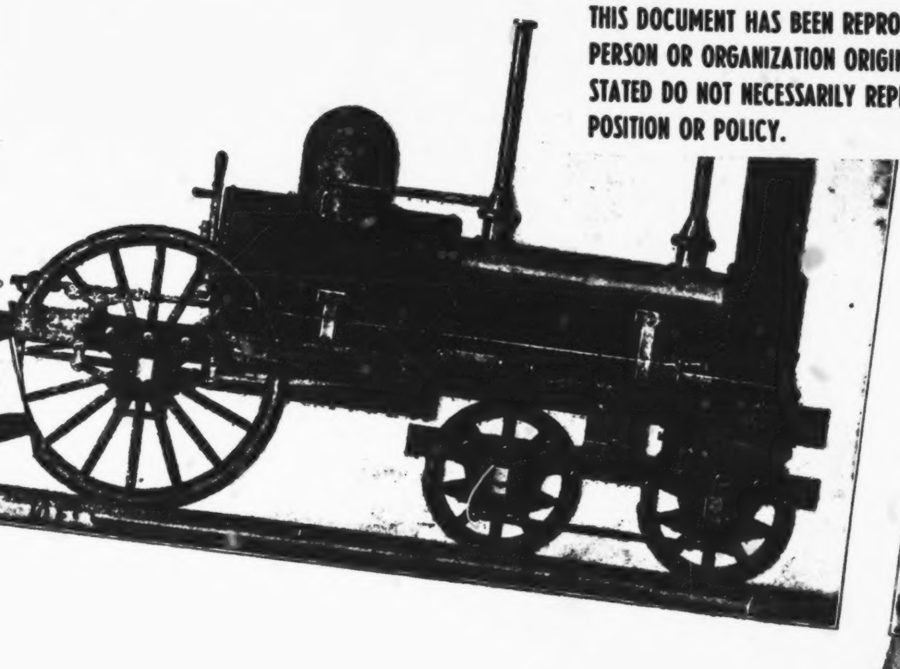

Fig. 7.—Rogers' Passenger

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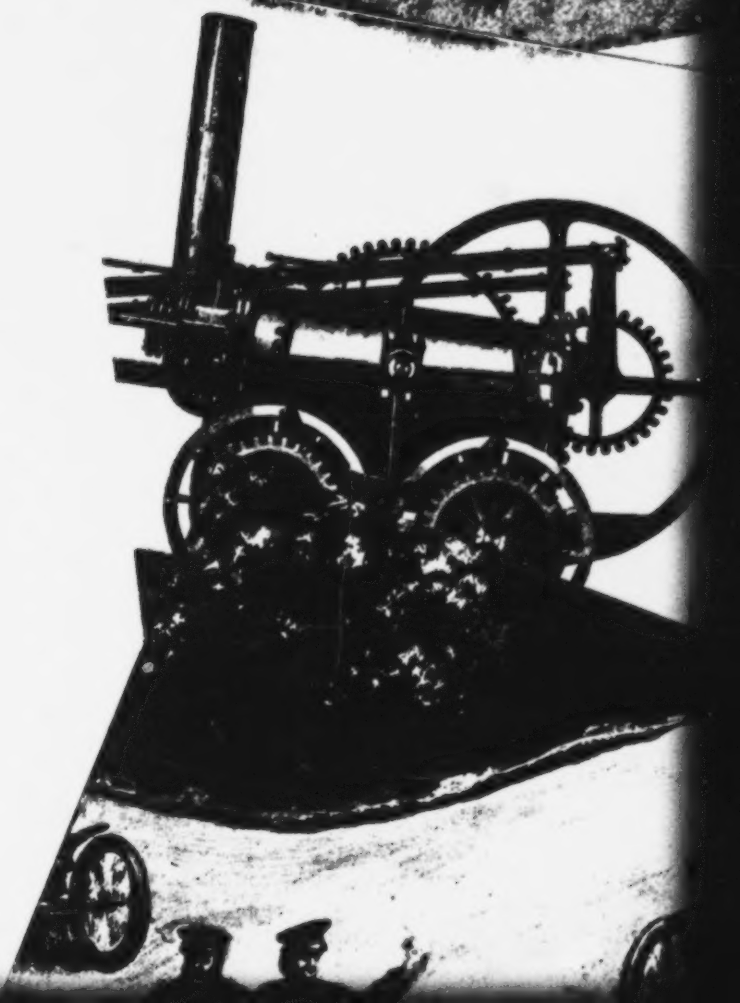
TRANSPORTATION
LONG AGO

- AIRPLANES
- TRAINS
- AUTOMOBILES
- SHIPS
- BALLOONS



THE GEORGE WASHINGTON UNIVERSITY

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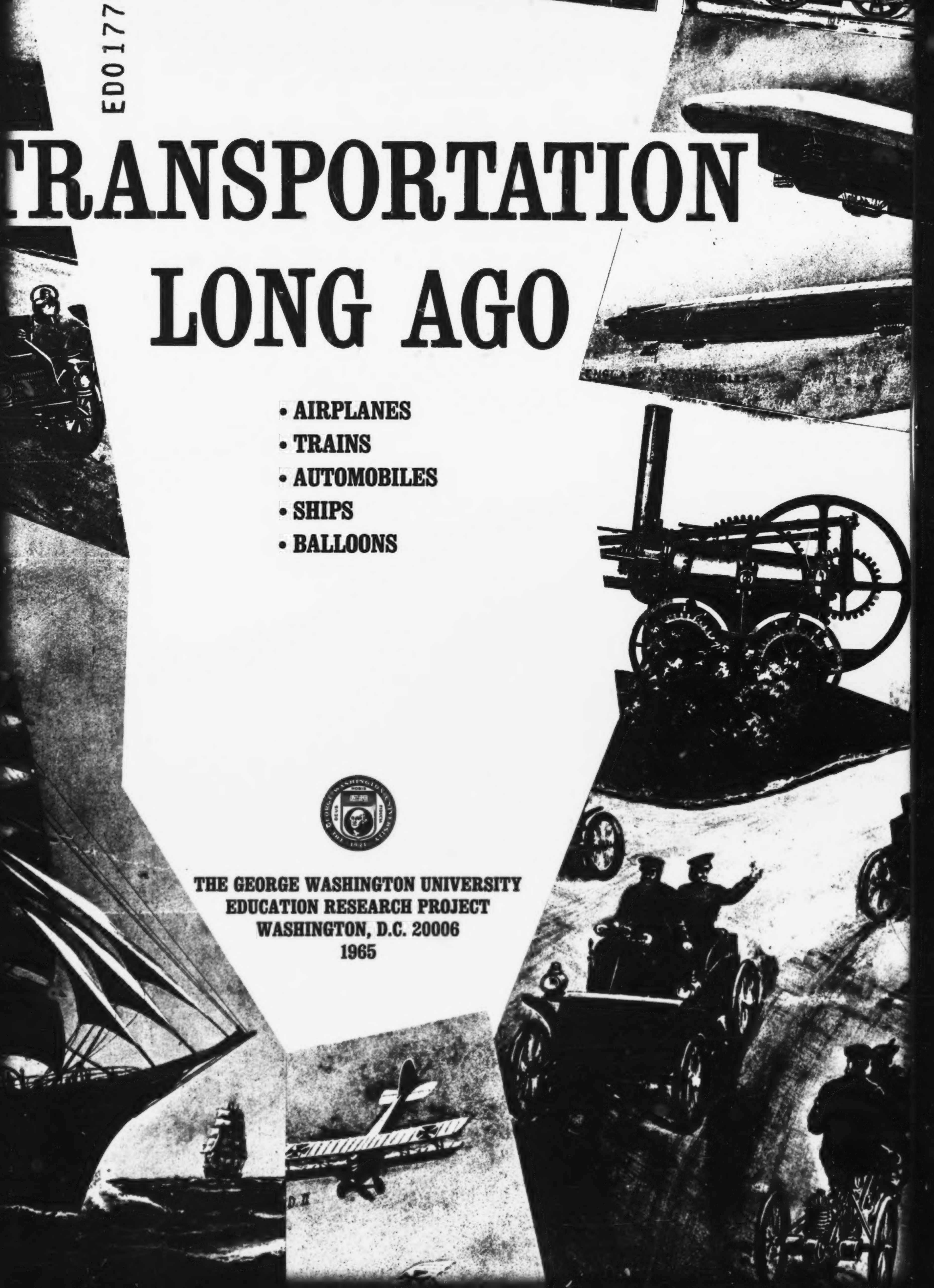

TRANSPORTATION LONG AGO

- AIRPLANES
- TRAINS
- AUTOMOBILES
- SHIPS
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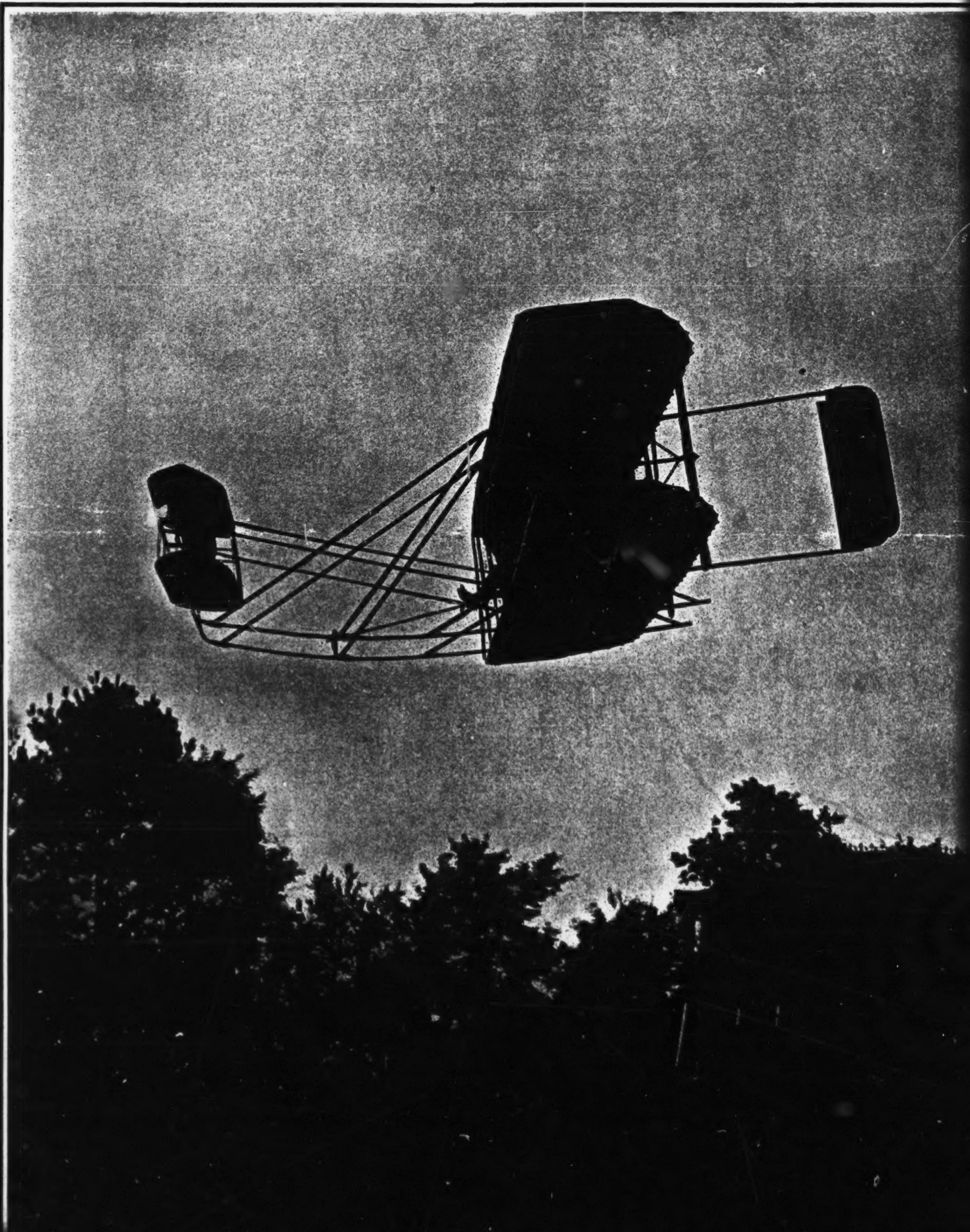
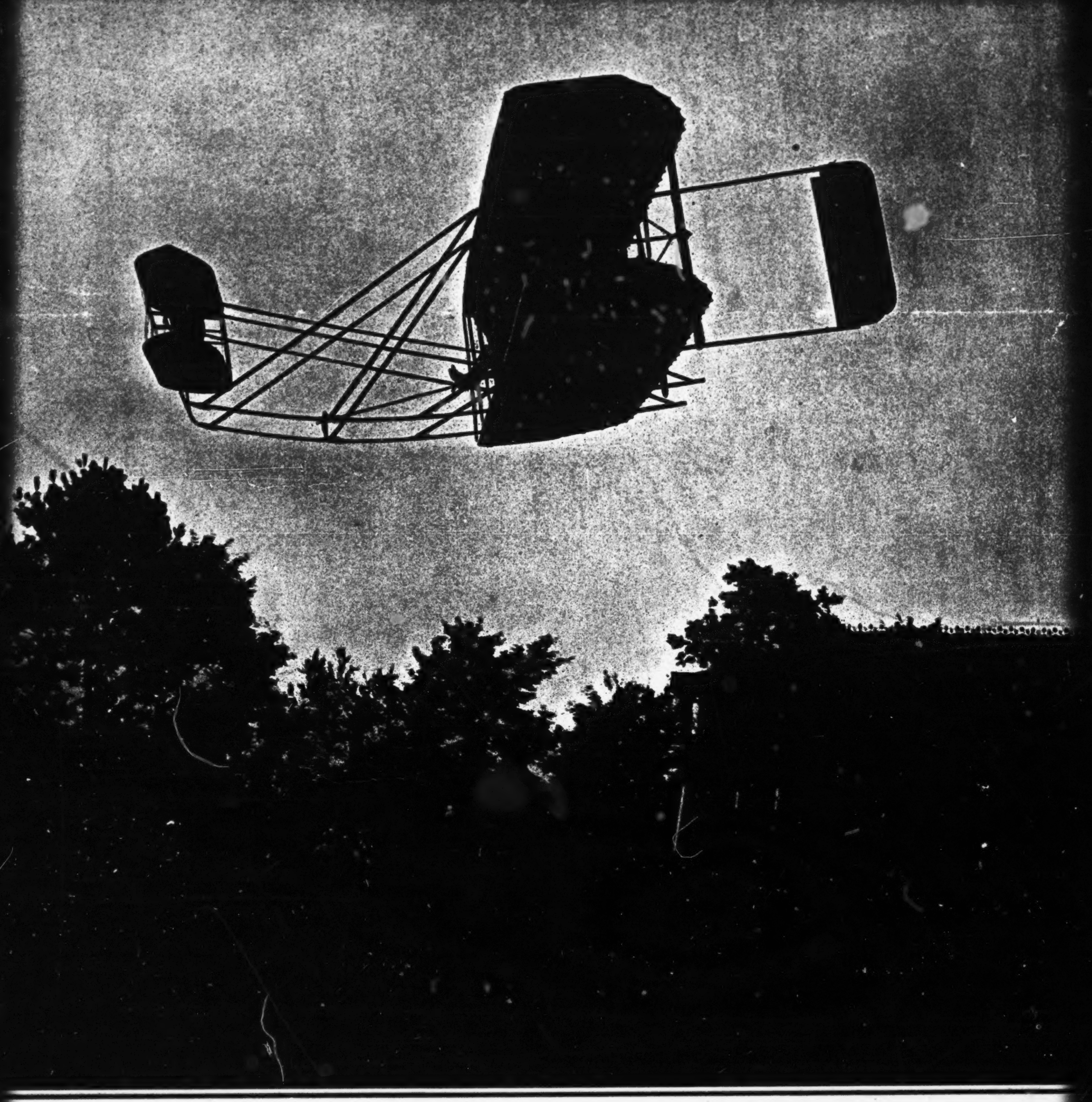
THE GEORGE WASHINGTON UNIVERSITY
EDUCATION RESEARCH PROJECT
WASHINGTON, D.C. 20006
1965

AIRPLANE



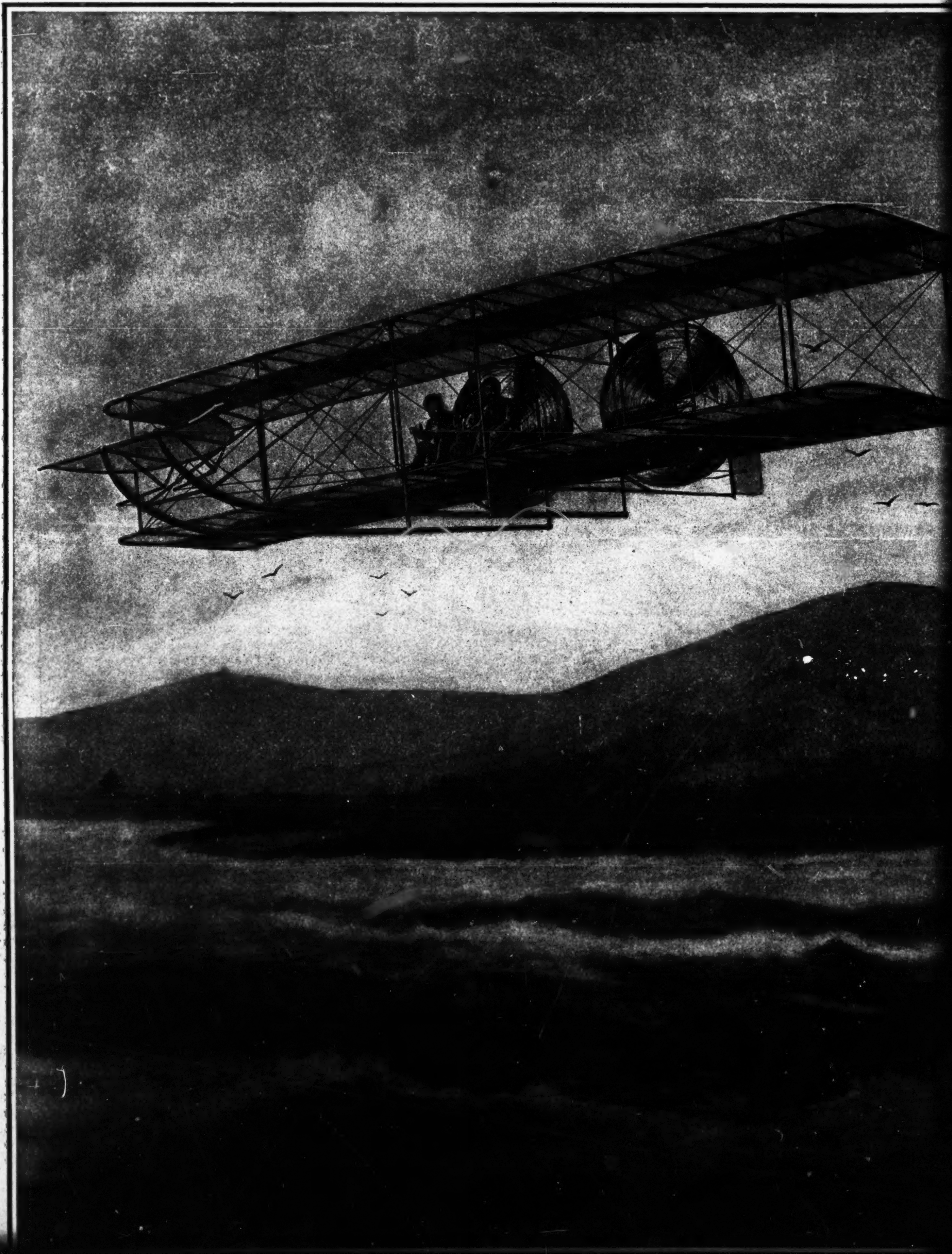


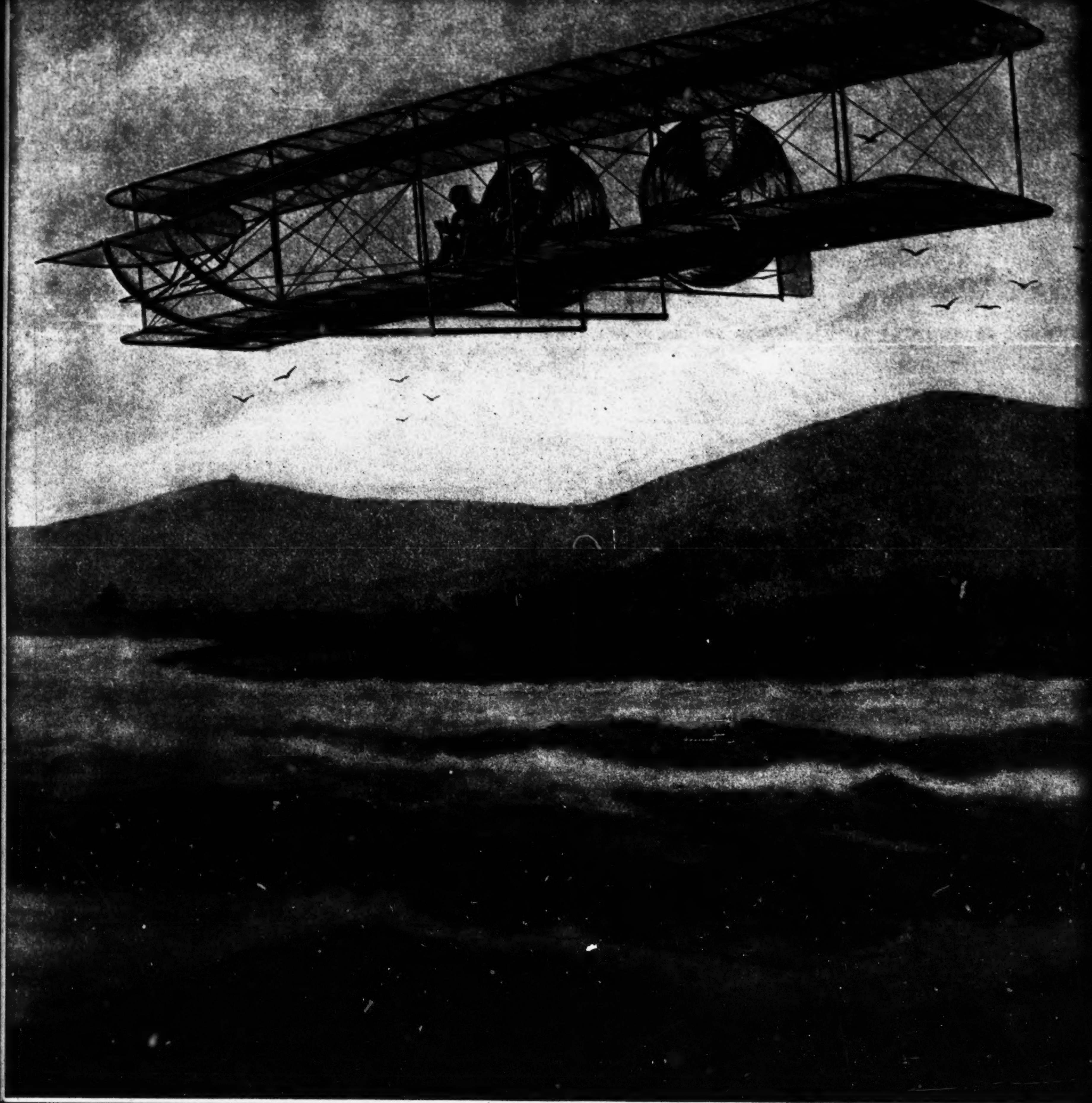
The first airplanes looked like this.

This is a picture taken 60 years ago.

It shows one of the flights by the Wright brothers.

AIRPLANE





This plane flew at a speed of 45 miles per hour.

It was one of the first to carry two men.

It had a 30 horsepower motor.

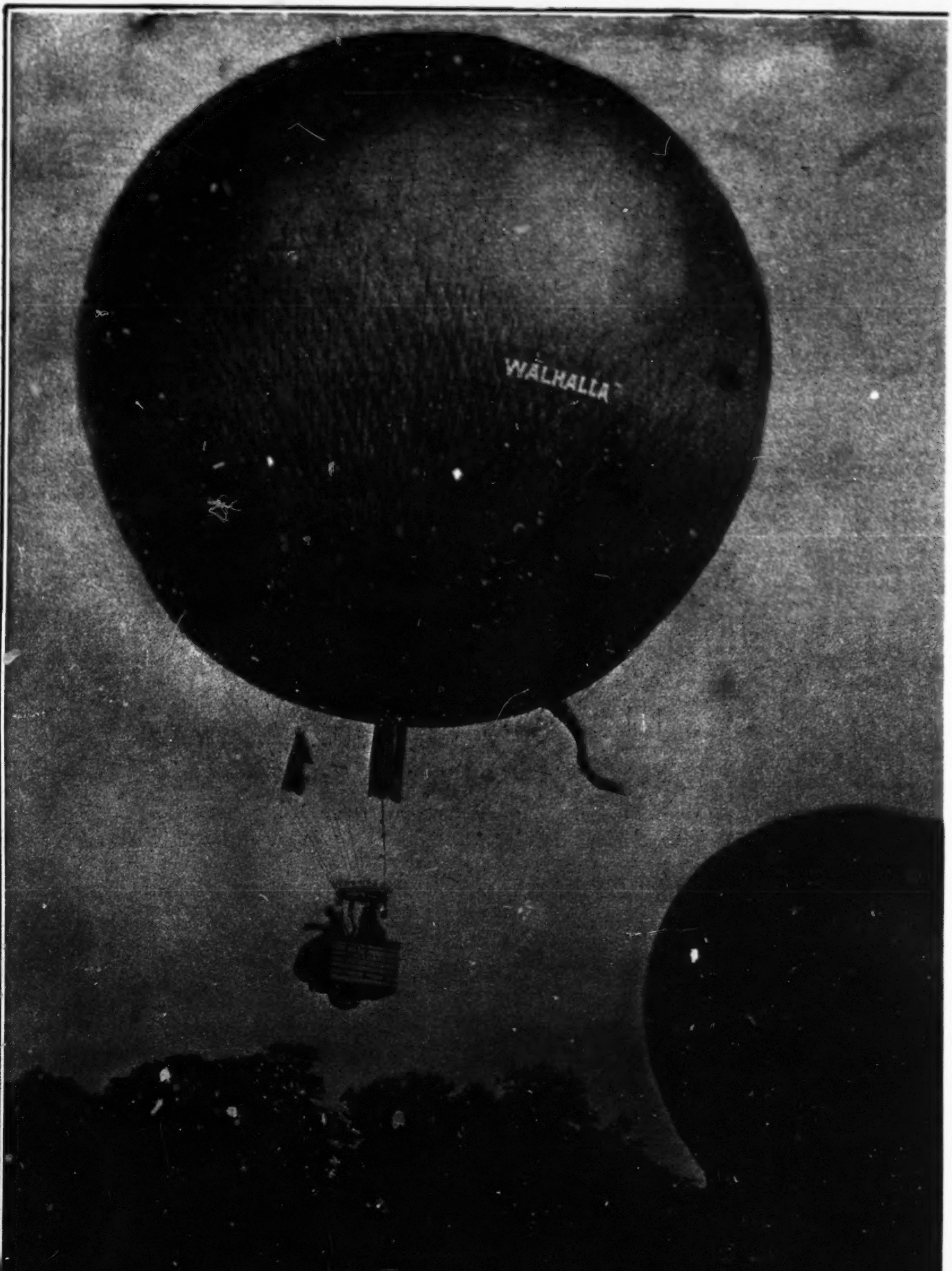
AIRPLANE

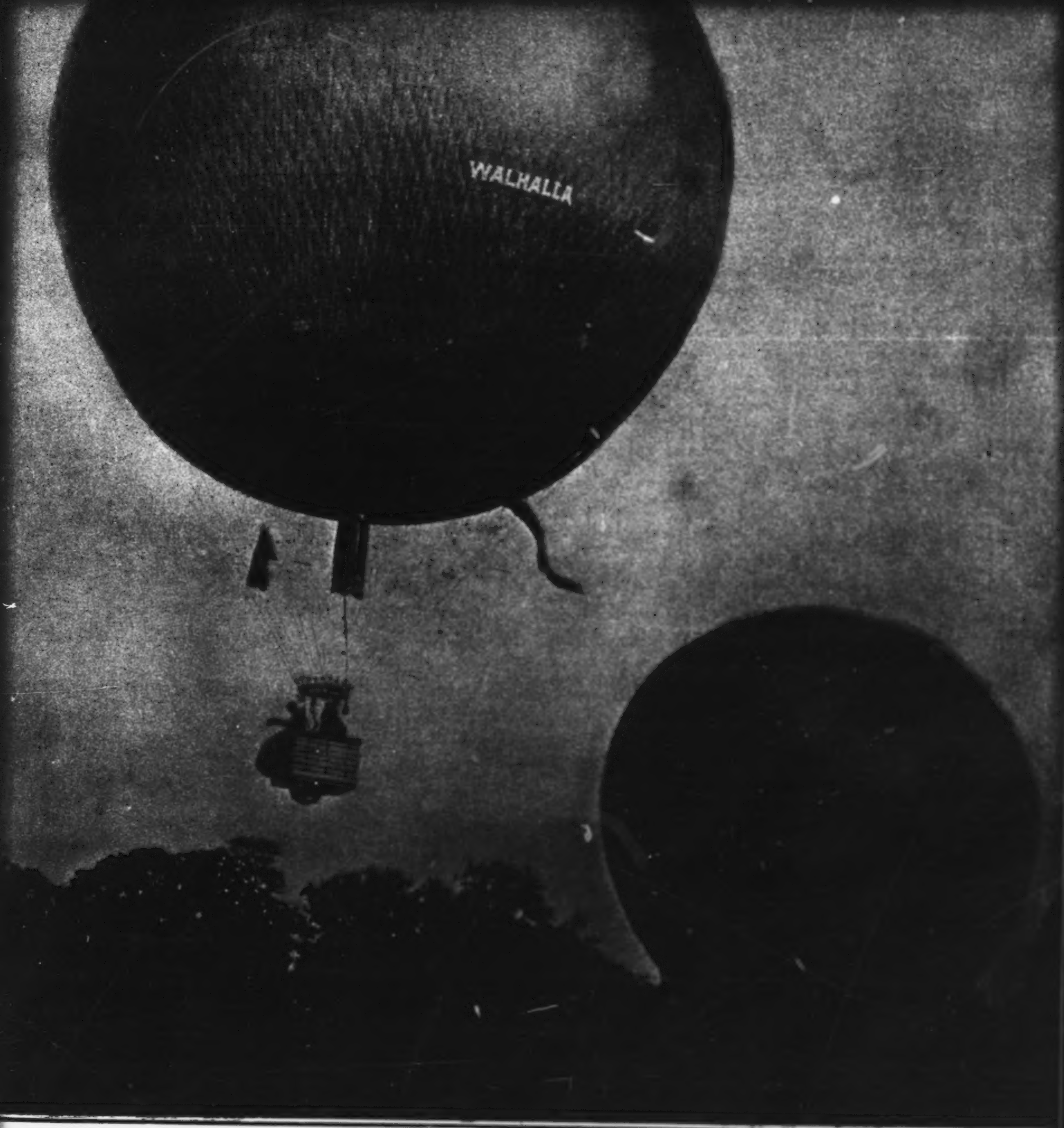
In 1912 an automobile raced an airplane.

The plane won.

The race took place at Galveston, Texas.

BALLOONS



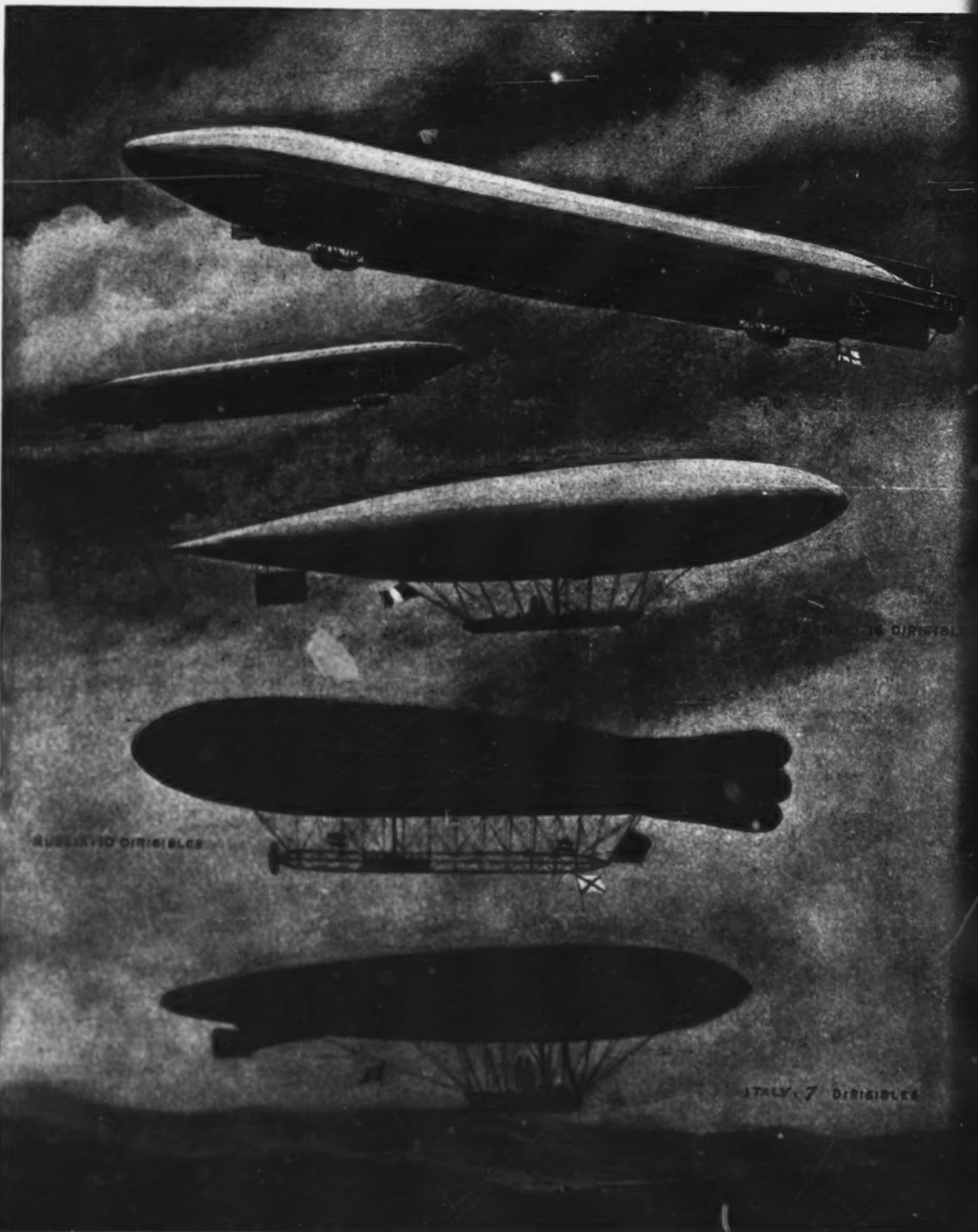


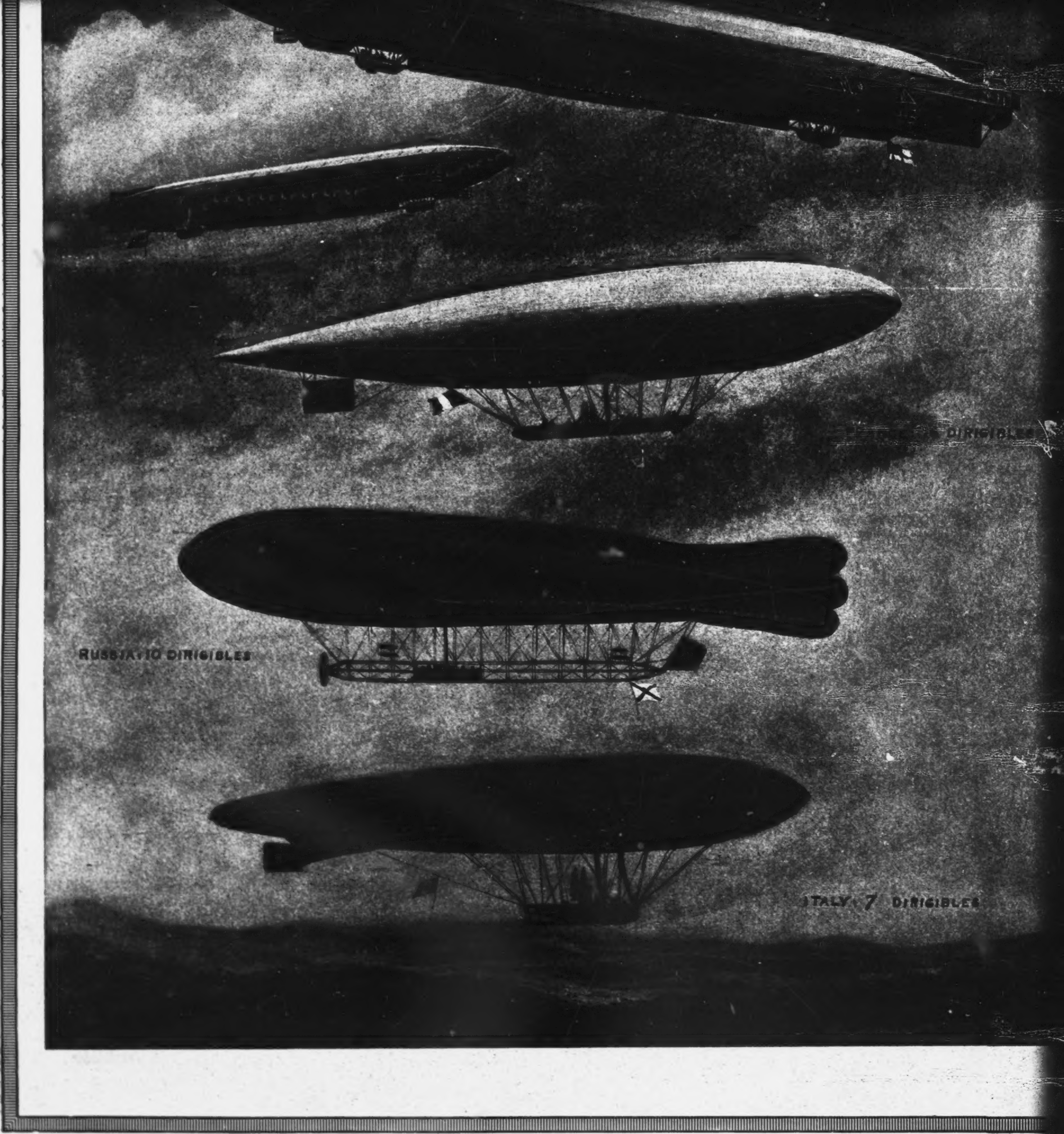
Balloons were also used in races.

In 1906 sixteen balloons raced in Europe.

The winner went 395 miles in 22 hours and 28 minutes.

DIRIGIBLES


16 DIRIGIBL
RUSSIA: 10 DIRIGIBLES
ITALY: 7 DIRIGIBLES

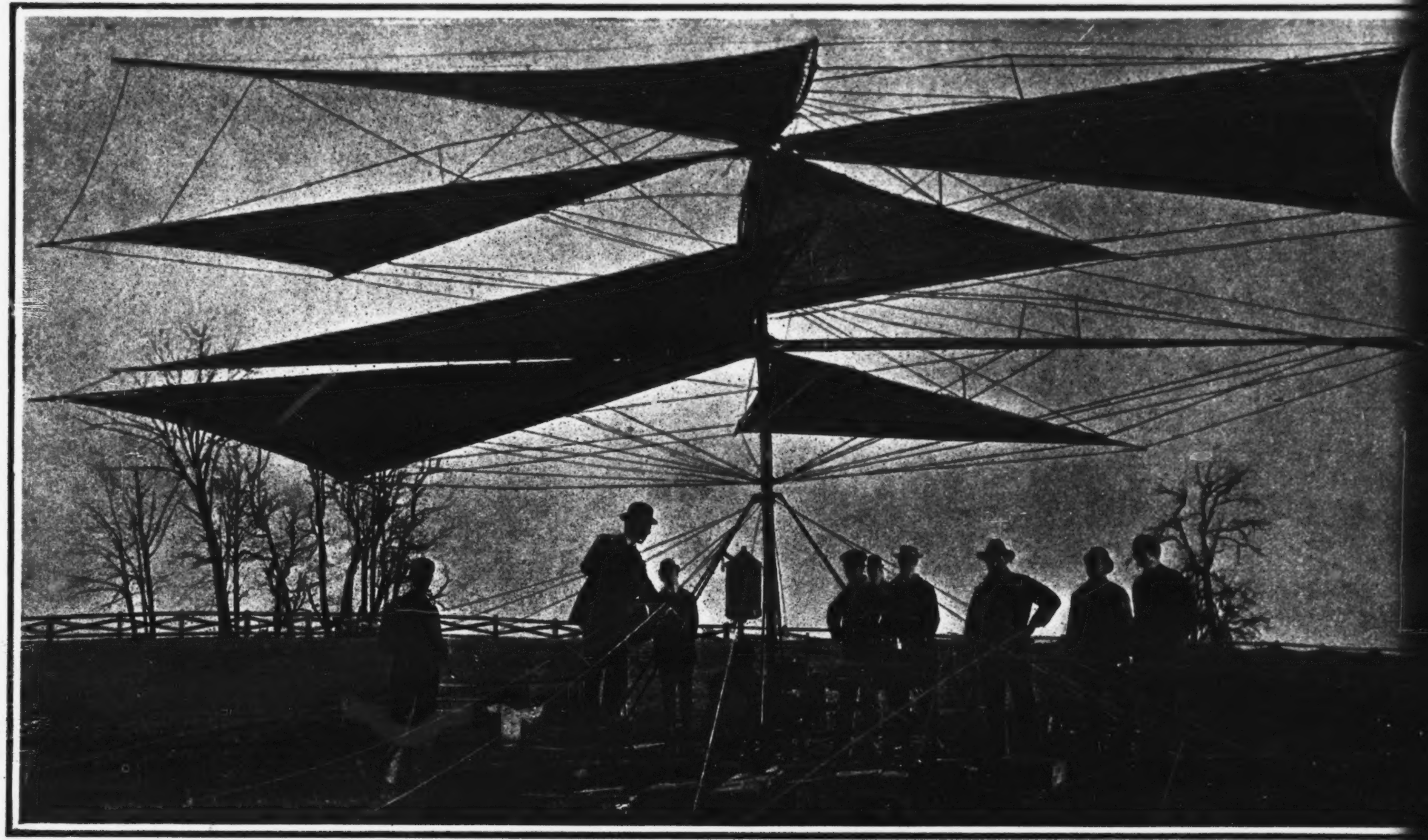

DIRIGIBLES
RUSSIA: 10 DIRIGIBLES
ITALY: 7 DIRIGIBLES

Airships were filled with gas like balloons.

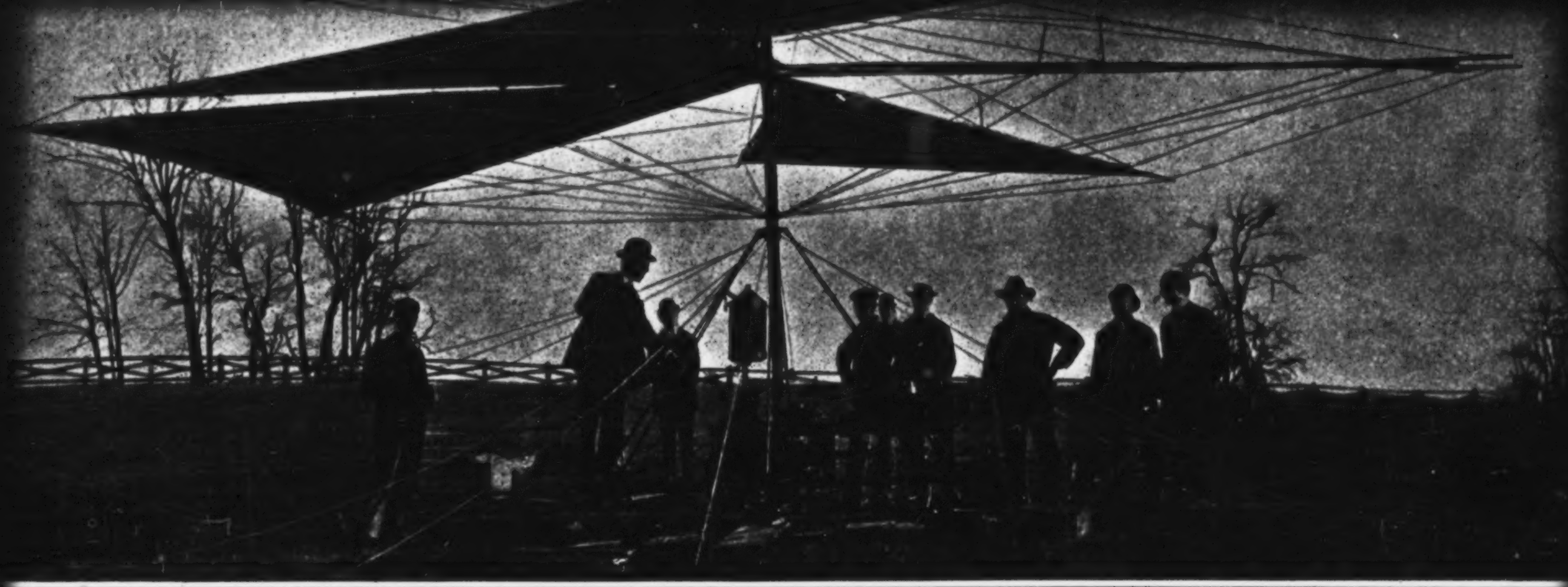
They also had motors.

These airships were used in World War I.

HELICOPTER



Full-sized Model of a Helicopter Built for Experimental Purposes.



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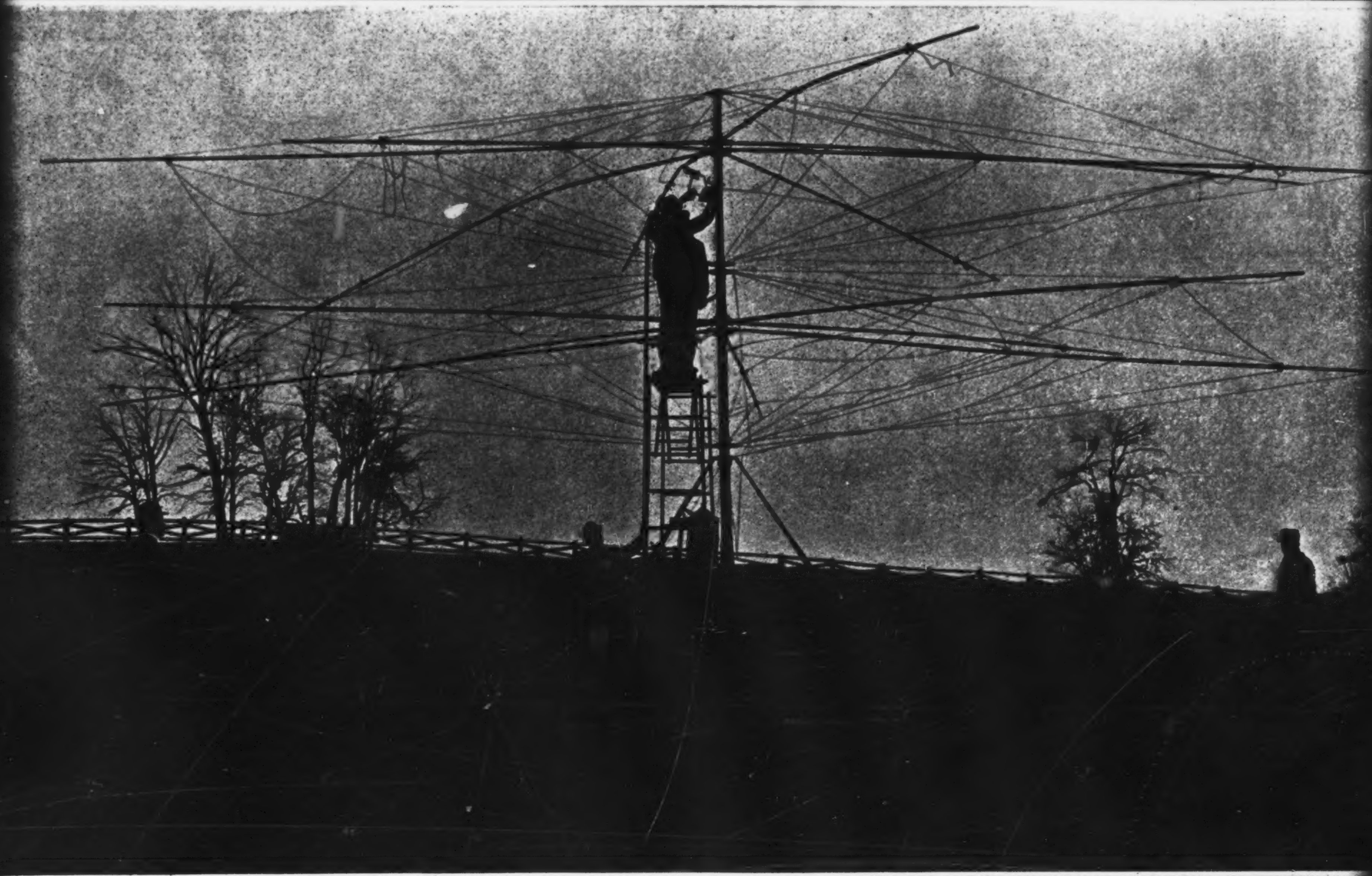


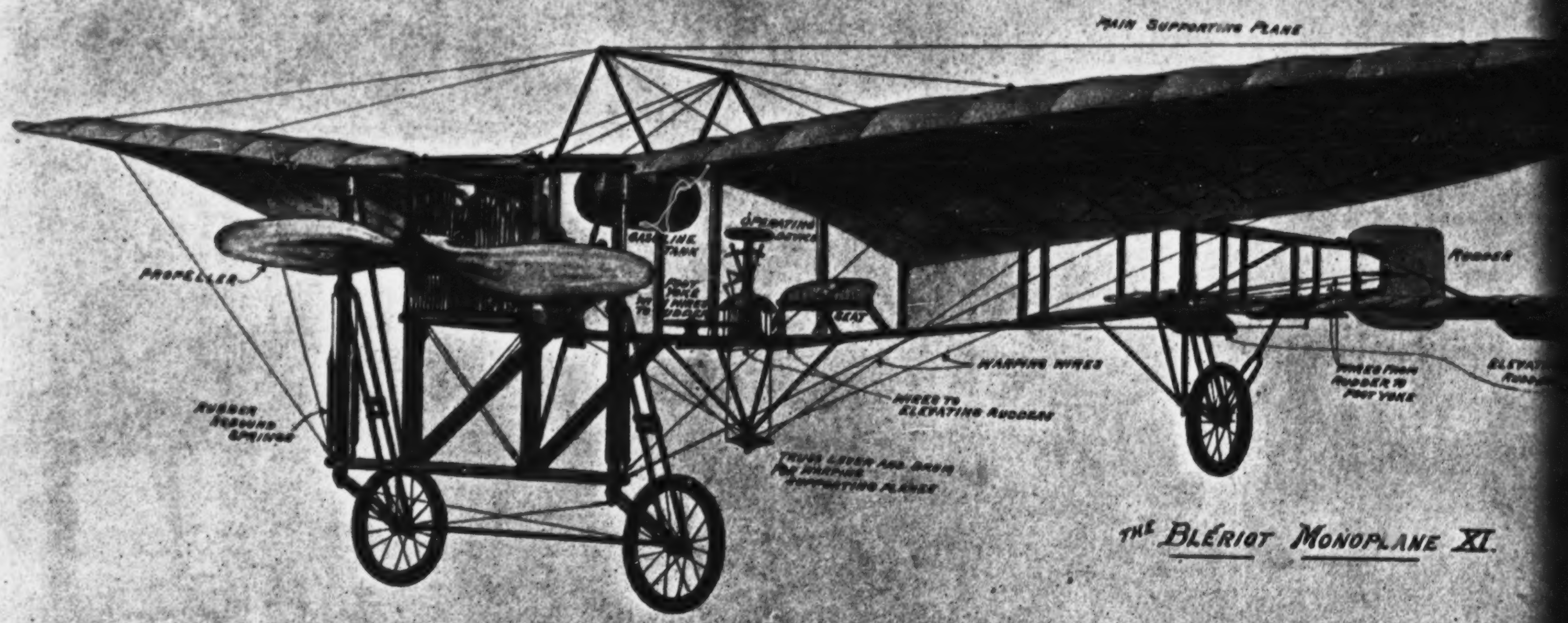
iameter of propellers, 35 feet. Area, 850 square feet. Revolutions of fans, 31 per minute. Revolutions of engine, 1550. Brake horse-power, 20. Lift on measuring springs, 700 pounds. Lift per horse-power, 35 po

This shows an old helicopter.

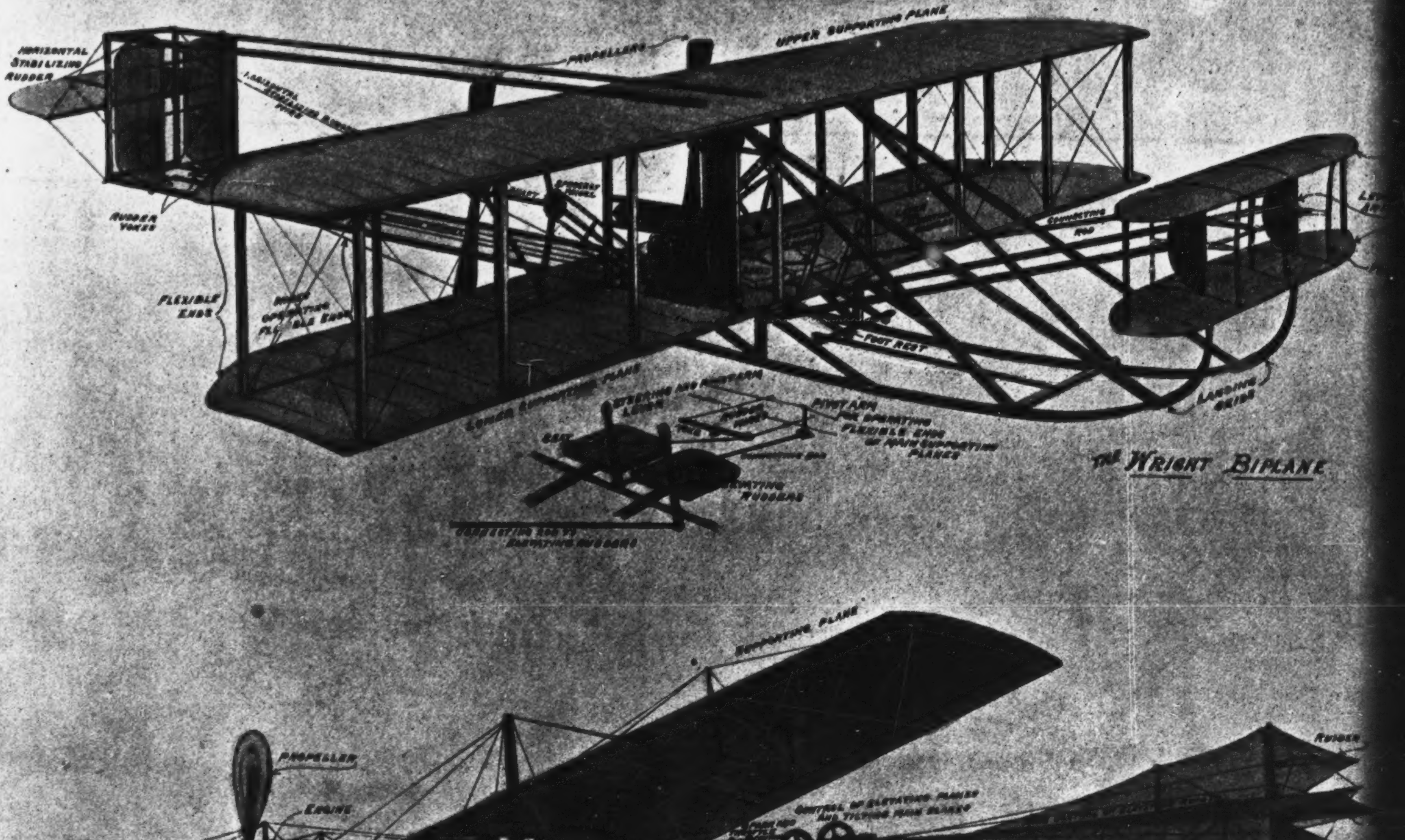
The blades turned in opposite directions.

Helicopters fly straight up.

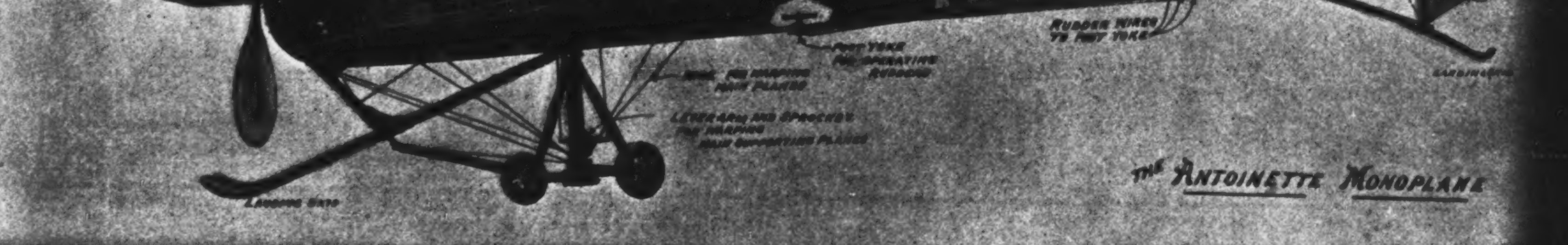
AIRPLANES


MAIN SUPPORTING PLANE
PROPELLER
GASOLINE TANK
OPERATING DEVICE
SEAT
RUDDER
WARPING WIRES
WIRES TO ELEVATING RUDDERS
RUBBER REBOUND SPRINGS
TRUSS LEVER AND DRUM FOR WARPING SUPPORTING PLANES
WIRES FROM RUDDER TO FOOT YOKE

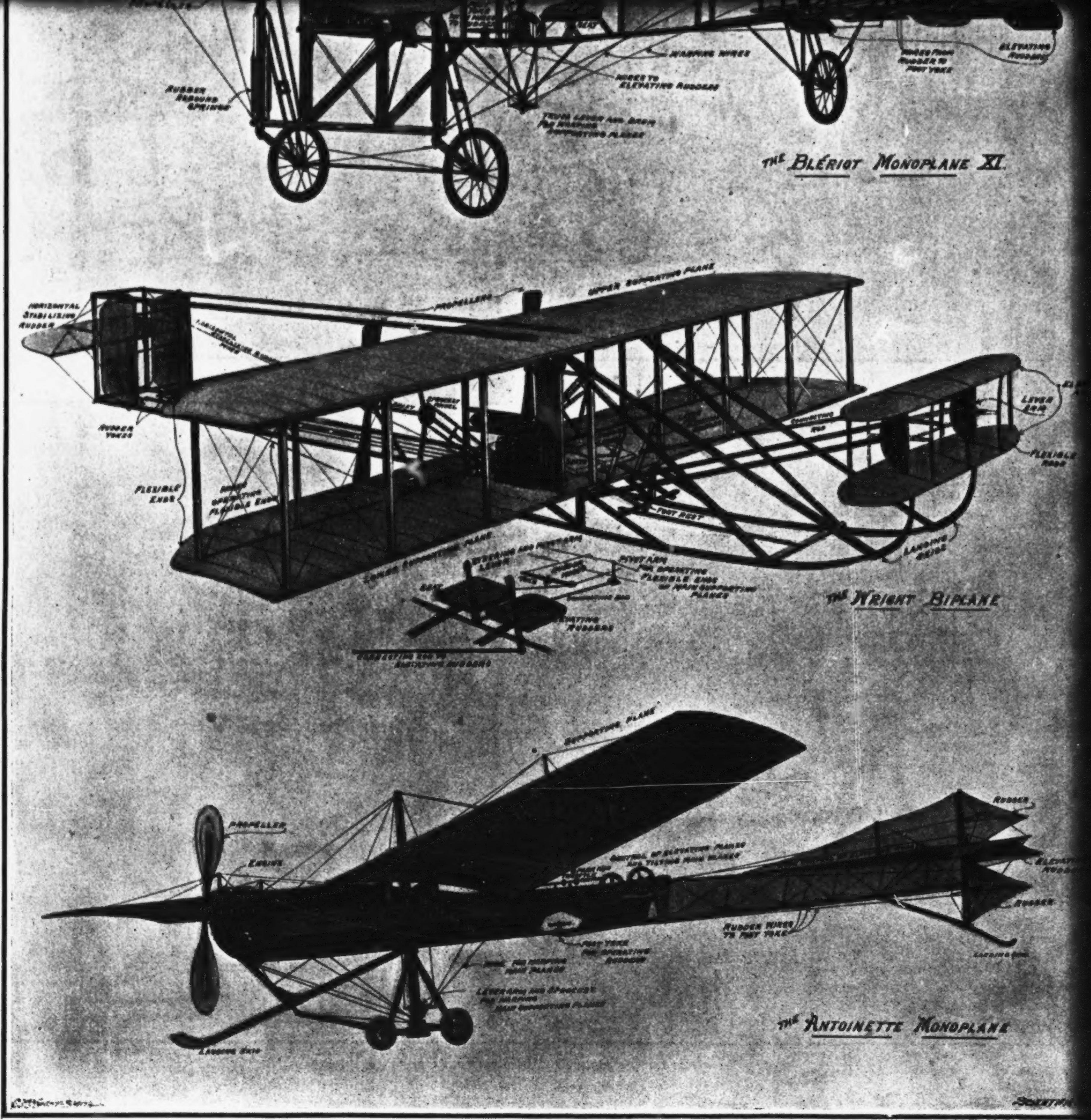
THE BLÉRIOT MONOPLANE XI.


HORIZONTAL STABILIZING RUDDER
PROPELLERS
UPPER SUPPORTING PLANE
RUDDER YOKES
CONNECTING ROD
FLEXIBLE ENDS
FOOT REST
LANDING SKIDS
LOWER SUPPORTING PLANE
STEERING AND WARPING LEVER
PIVOT ARM FOR OPERATING FLEXIBLE ENDS OF MAIN SUPPORTING PLANES
SEAT
ELEVATING RUDDERS

THE WRIGHT BIPLANE


SUPPORTING PLANE
PROPELLER
ENGINE
CONTROL OF ELEVATING PLANES AND TILTING MAIN PLANES
RUDDER
RUDDER WIRES TO FOOT YOKE
FOOT YOKE FOR OPERATING RUDDERS
WIRE FOR WARPING MAIN PLANES
LEVER ARM AND SPROCKET FOR WARPING MAIN SUPPORTING PLANES
LANDING SKID

THE ANTOINETTE MONOPLANE


WARPING WIRES
RUBBER AROUND SPRINGS
WIRES TO ELEVATING RUDDERS
ELEVATING RUDDERS
THE BLÉRIOT MONOPLANE XI
UPPER SUPPORTING PLANE
PROPELLERS
HORIZONTAL STABILIZING RUDDER
RUDDER YOKES
FLEXIBLE ENDS
LEVER ARM
FLEXIBLE ROD
CONNECTING ROD
FOOT REST
LANDING SKIDS
LOWER SUPPORTING PLANE
THE WRIGHT BIPLANE
SUPPORTING PLANE
PROPELLER
ENGINE
RUDDER
ELEVATING RUDDER
RUDDER WIRES TO FOOT YOKE
LANDING SKID
THE ANTOINETTE MONOPLANE

The drawing in the center

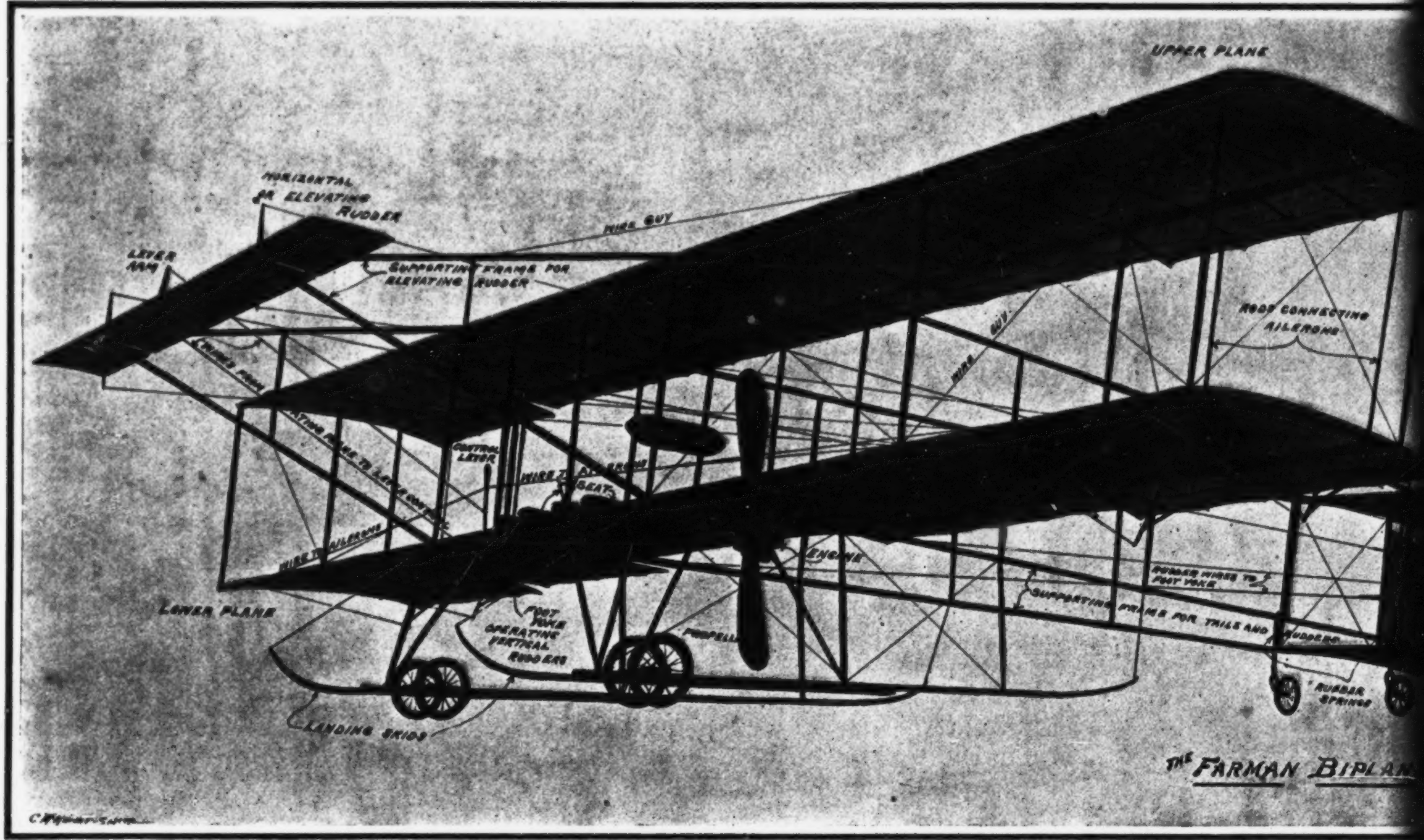
is the Wright Biplane in 1910.

A biplane has two wings.

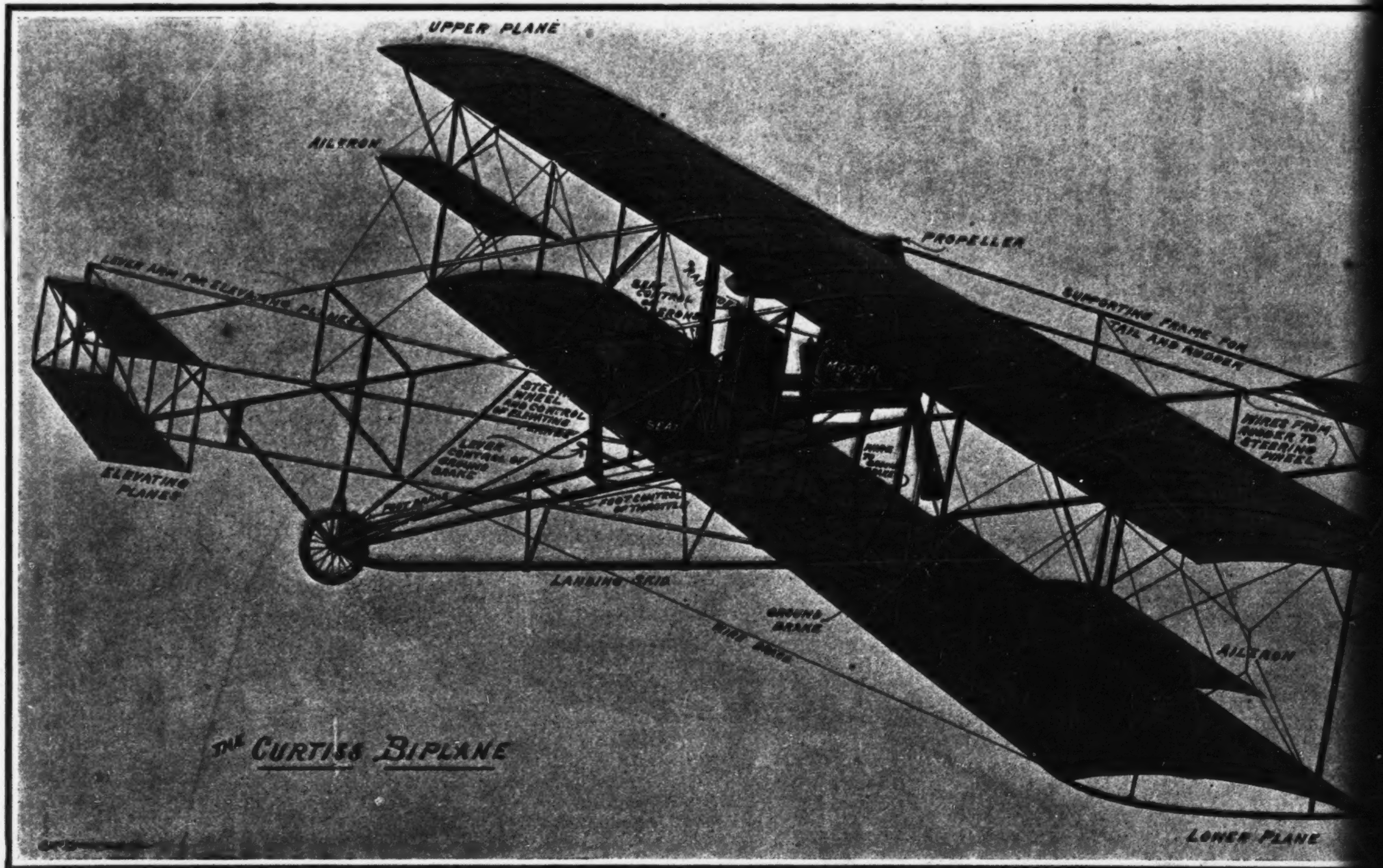
The other planes are monoplanes.

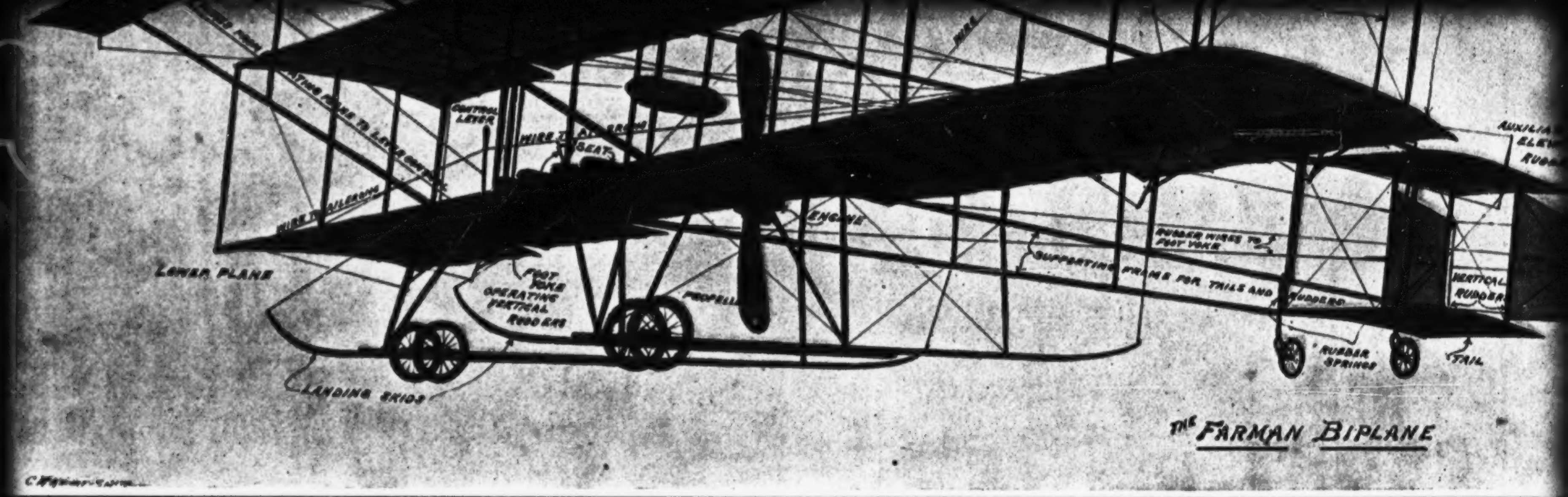
A monoplane has one wing.

BIPLANE


UPPER PLANE
HORIZONTAL OR ELEVATING RUDDER
LEVER ARM
WIRE GUY
SUPPORTING FRAME FOR ELEVATING RUDDER
HINGES FROM
CONTROL LEVER
WIRE TO AILERONS
SEAT
WIRE GUY
ROD CONNECTING AILERONS
WIRE TO AILERONS
LOWER PLANE
FOOT YOKE OPERATING VERTICAL RUDDERS
ENGINE
PROPELLER
RUDDER WIRES TO FOOT YOKE
SUPPORTING FRAME FOR TAILS AND RUDDERS
RUBBER SPRINGS
LANDING SKIDS
THE FARMAN BIPLAN

The Farman 50 horse-power biplane.


UPPER PLANE
AILERON
LEVER ARM FOR ELEVATING PLANES
PROPELLER
SEAT CONTROL OF AILERONS
SUPPORTING FRAME FOR TAIL AND RUDDER
STEERING WHEEL AND CONTROL OF ELEVATING PLANES
MOTOR
LEVER CONTROL OF GROUND BRAKE
SEAT
ELEVATING PLANES
WIRES FROM RUDDER TO STEERING WHEEL
FOOT CONTROL OF THROTTLE
LANDING SKID
GROUND BRAKE
WIRE BRACE
AILERON
THE CURTISS BIPLANE
LOWER PLANE


CONTROL LEVER
WIRE TO AILERONS
SEAT
WIRE TO AILERONS
ENGINE
LOWER PLANE
FOOT YOKE OPERATING VERTICAL RUDDERS
PROPELLER
LANDING SKIDS
RUBBER WIRES TO FOOT YOKE
SUPPORTING FRAME FOR TAILS AND RUDDERS
VERTICAL RUDDERS
RUBBER SPRINGS
TAIL
THE FARMAN BIPLANE

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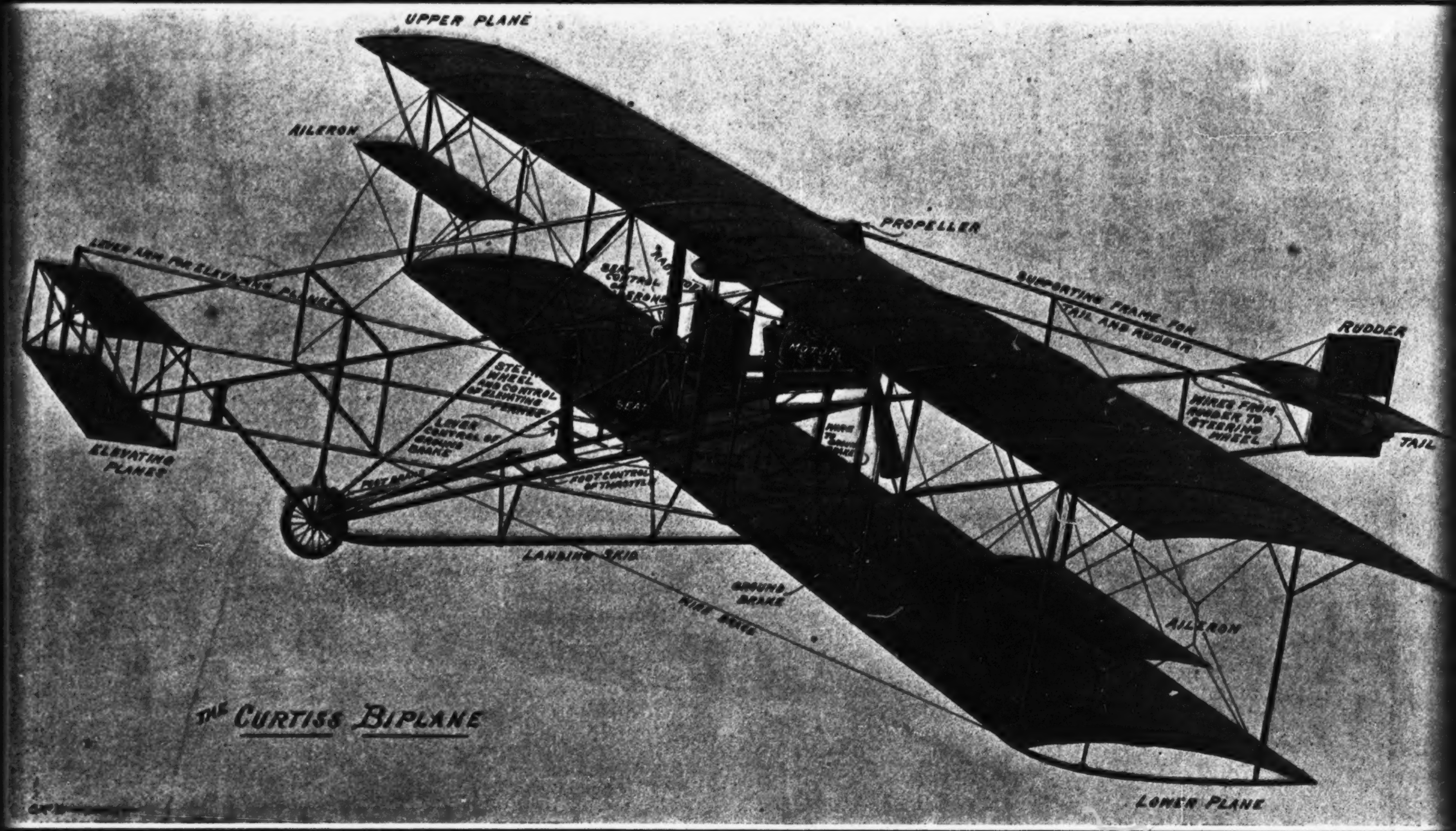
UPPER PLANE
AILERON
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LEVER ARM FOR ELEVATING PLANES
SUPPORTING FRAME FOR TAIL AND RUDDER
RUDDER
MOTOR
STEERING WHEEL AND CONTROL OF ELEVATING PLANES
SEAT
LEVER CONTROL OF GROUND BRAKE
WIRES FROM RUDDER TO STEERING WHEEL
TAIL
ELEVATING PLANES
FOOT CONTROL OF THROTTLE
LANDING SKID
GROUND BRAKE
WIRE BRACE
AILERON
THE CURTISS BIPLANE
LOWER PLANE

The Curtiss biplane with intermediate adjusting planes.

The Curtiss Biplane - 1910.

The motor for this plane had 8 cylinders.

It also had 50 horsepower.

Compare it with the other biplanes.

AIRPLANES

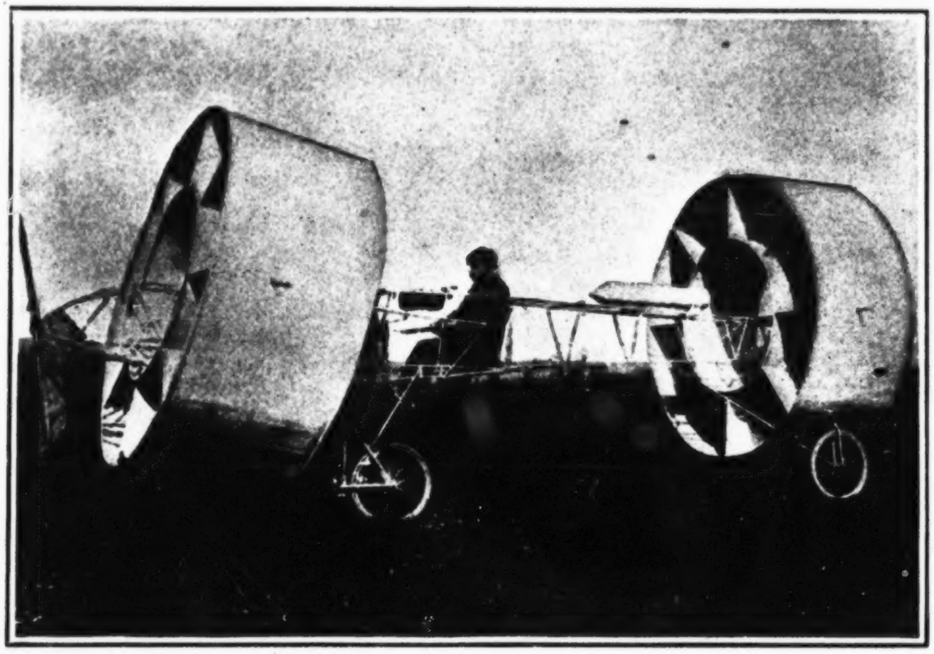


Fig. 1.—This designer was haunted by the fear of edgewise tumbling. He did not know that drums are inefficient lifting surfaces.

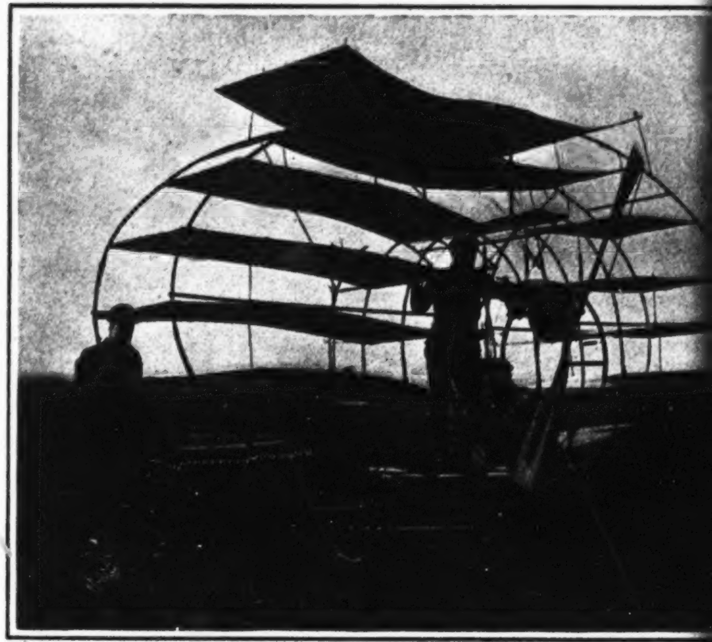


Fig. 2.—A marquis's idea of applying the principle of cent
Too much head resistance here.

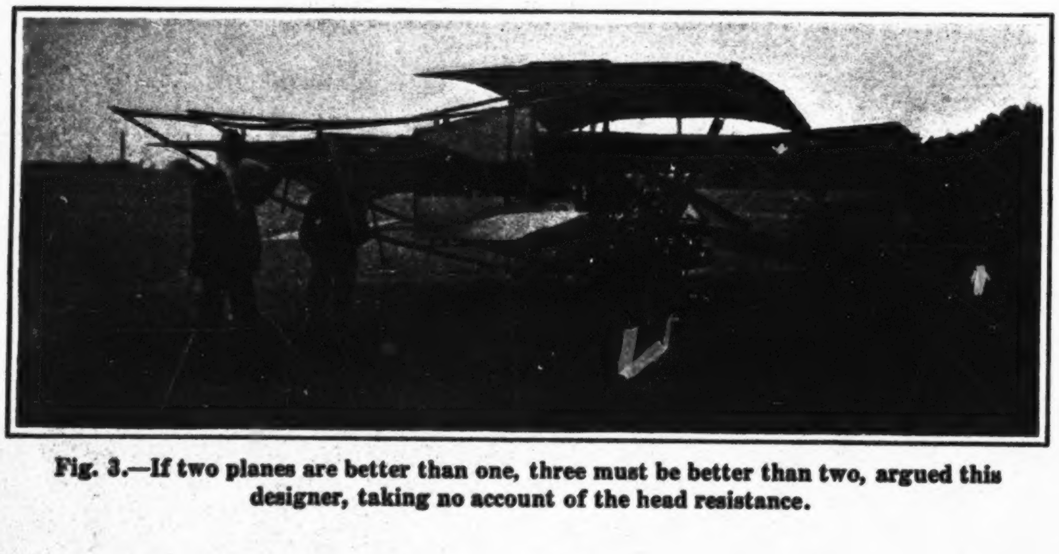
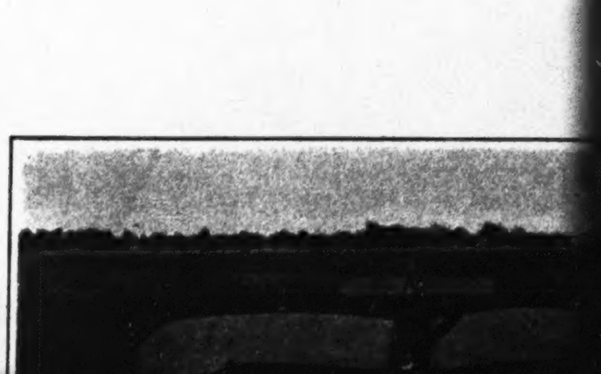
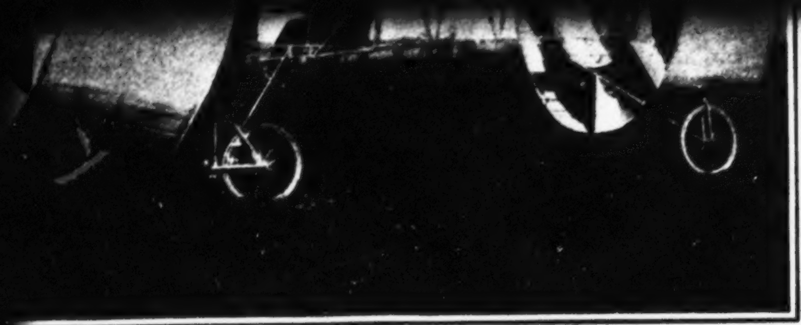


Fig. 3.—If two planes are better than one, three must be better than two, argued this designer, taking no account of the head resistance.





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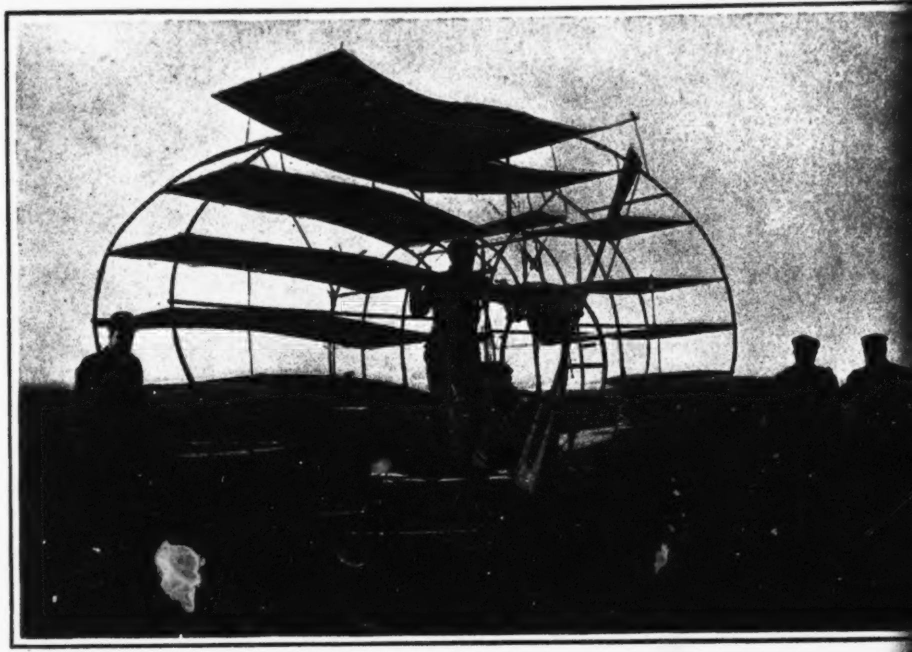

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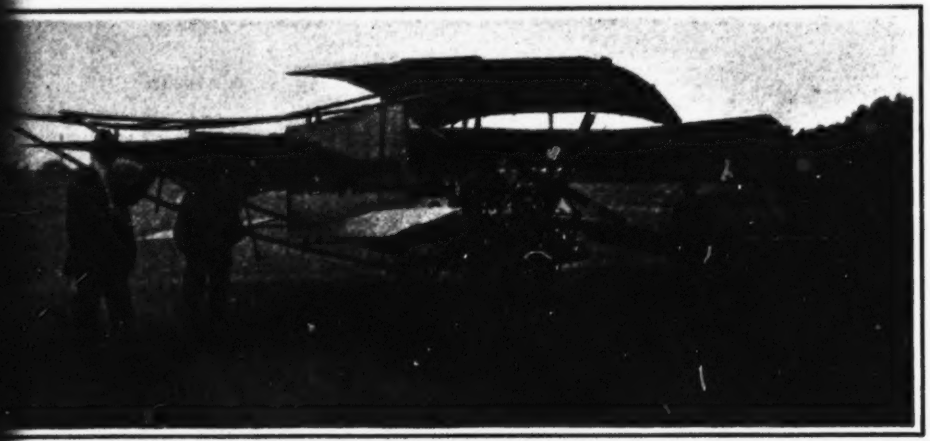

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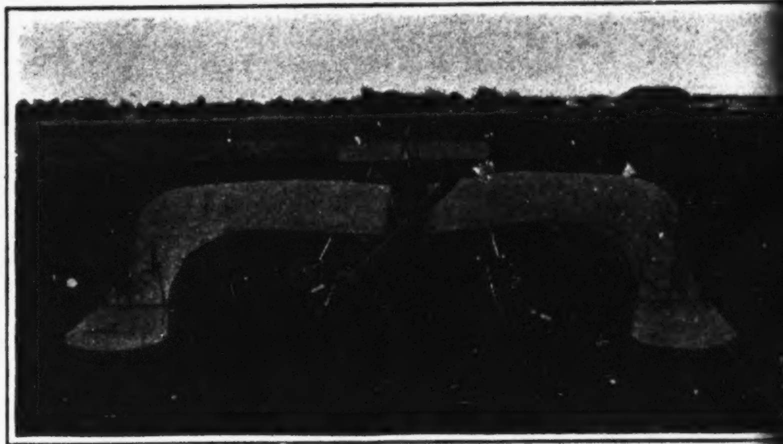


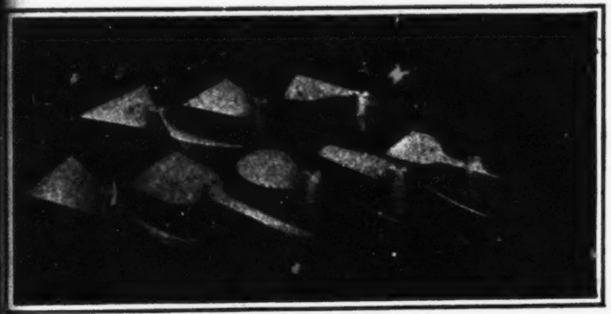
Fig. 4.—Here the eye rests in peace, for compared with standard des the variations are more conspicuous than radical.

This shows some funny looking planes in 1911.

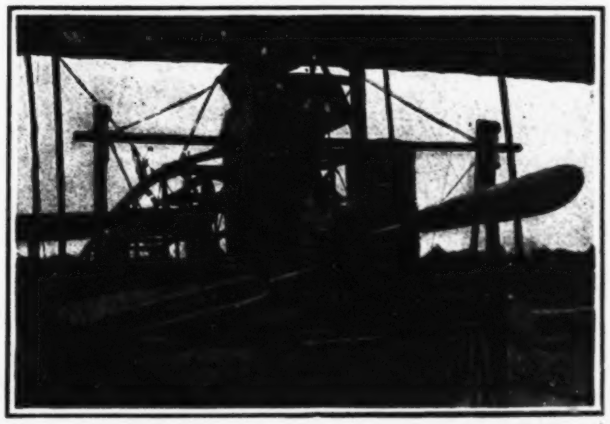
None of these could really fly.

They couldn't even get off the ground.

PROPELLERS



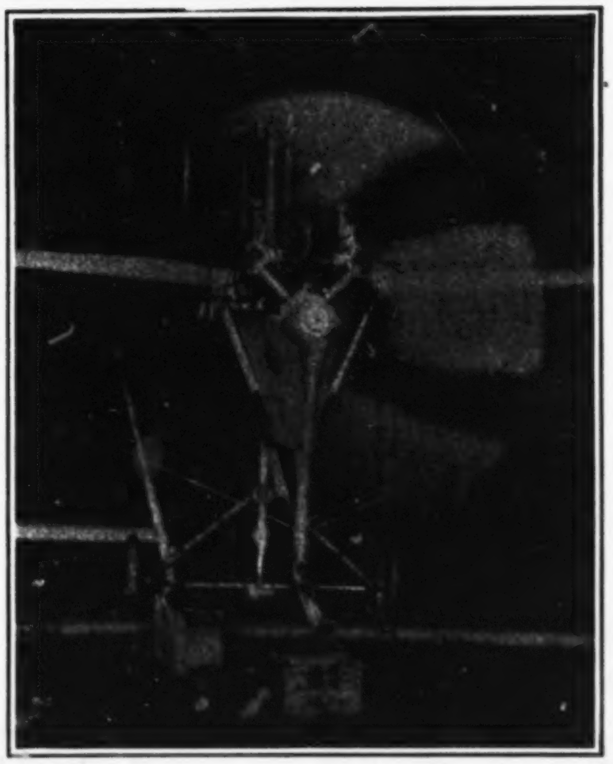
Experimental propellers



This propeller had steel arms and wooden blades.

Abandone

A 4 bladed propeller



This propeller turned at 1400 r.p.m.

Anothe
propel

Abandoned

This propeller had steel arms and wooden blades.

A 4 bladed propeller

This propeller turned at 1400 r.p.m.

Another
propell

A radial motor

A 3 bladed

The double propellers of the Wright Biplane

l propellers

This propeller had steel arms and wooden blades.

Abandoned propellers

propeller

This propeller turned at 1400 r.p.m.

Another 4 bladed propeller

PILOTS

Some Famous American Aviators and Designers

Men Who Are Making Flying Machine History

Charles K. Hamilton, America's most daring biplane operator.

Thomas Scott Baldwin, an old airship captain now an aviator.

Charles A. Willard, first pilot of the Aeronautical Society.

"Bud" Mars, the
has made many cr

Wilbur Wright, the elder of the two brothers who built the first practical aeroplane.

J. Armstrong Drexel, American millionaire-Blériot pilot, noted for his altitude flights.

J. A. D. McCurdy, the Canadian Curtiss pilot, who flew from Key West almost to Havana.

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Walter Brookins and hi
Wright. He invent
spiral dive.

Glenn H. Curtiss, winner of the Scientific American trophy. First to rise from water in a biplane.

Earle L. Ovington, the first American to own and fly a 70-horse-power Blériot monoplane.

Frank Coffyn, the Wright pilot and instructor. He has made noteworthy cross-country flights.

Clifford B. Harmon, our
teur aviator, who flew
Island Sou

PILOTS

Some Famous European Aviators and Designe

Men Who Are Making Flying Machine History

Alfred Leblanc, France's chief representative in the Bennett Cup race.

Claude Grahame-White, England's leading aviator. He won the last Bennett Cup race.

Legagneux, the all-round French aviator, who has made records with both monoplanes and biplanes.

Vedrines, the M
who won a $4,00
flight from Par

Weyman, the American, who last summer all but won the $20,000 prize captured this year by Renaux.

Louis Blériot, France's premier monoplane inventor; first to cross the English Channel, July 25th, 1909.

Pierre Prier, the Frenchman who flew from London to Paris without a stop at over 60 miles per hour.

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Morane, the former Blériot
has invented an exceeding
and efficient monoplan

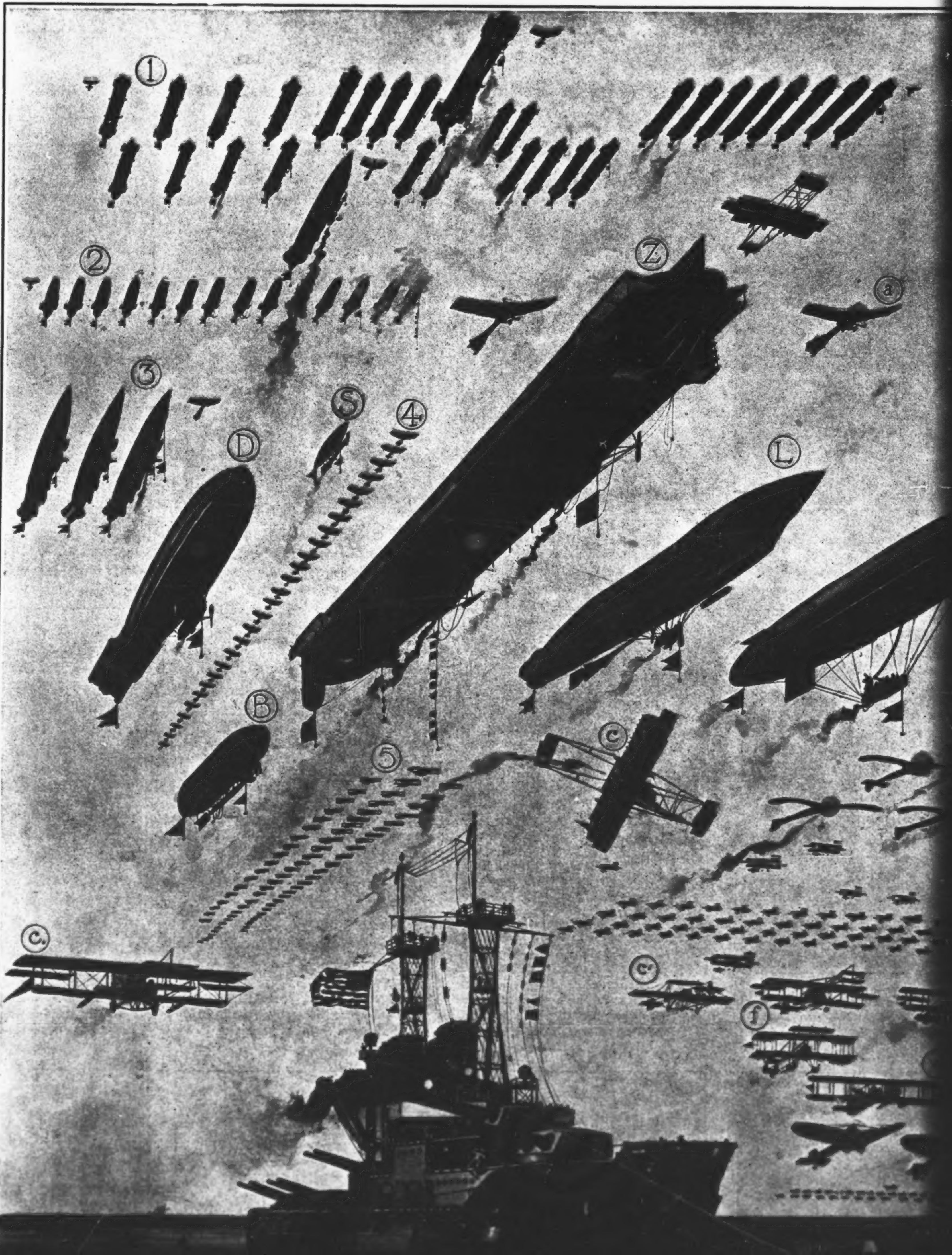
Eugène Rénaux, who won the $20,000 Michelin prize. He flew from Paris to the top of the Puy de Dome mountain with a passenger.

Louis Bréguet, leading French inventor and aviator. First to carry live load equaling weight of machine (11 passengers).

Robert Esnault-Pelterie, inventor and designer of R.E.P. monoplane. He is one of the best aviation engineers of the day.

Pierre Marie Bourniqu Fre
monoplane pilot, who m
cellent long-distance
records last year.

AIR SHIPS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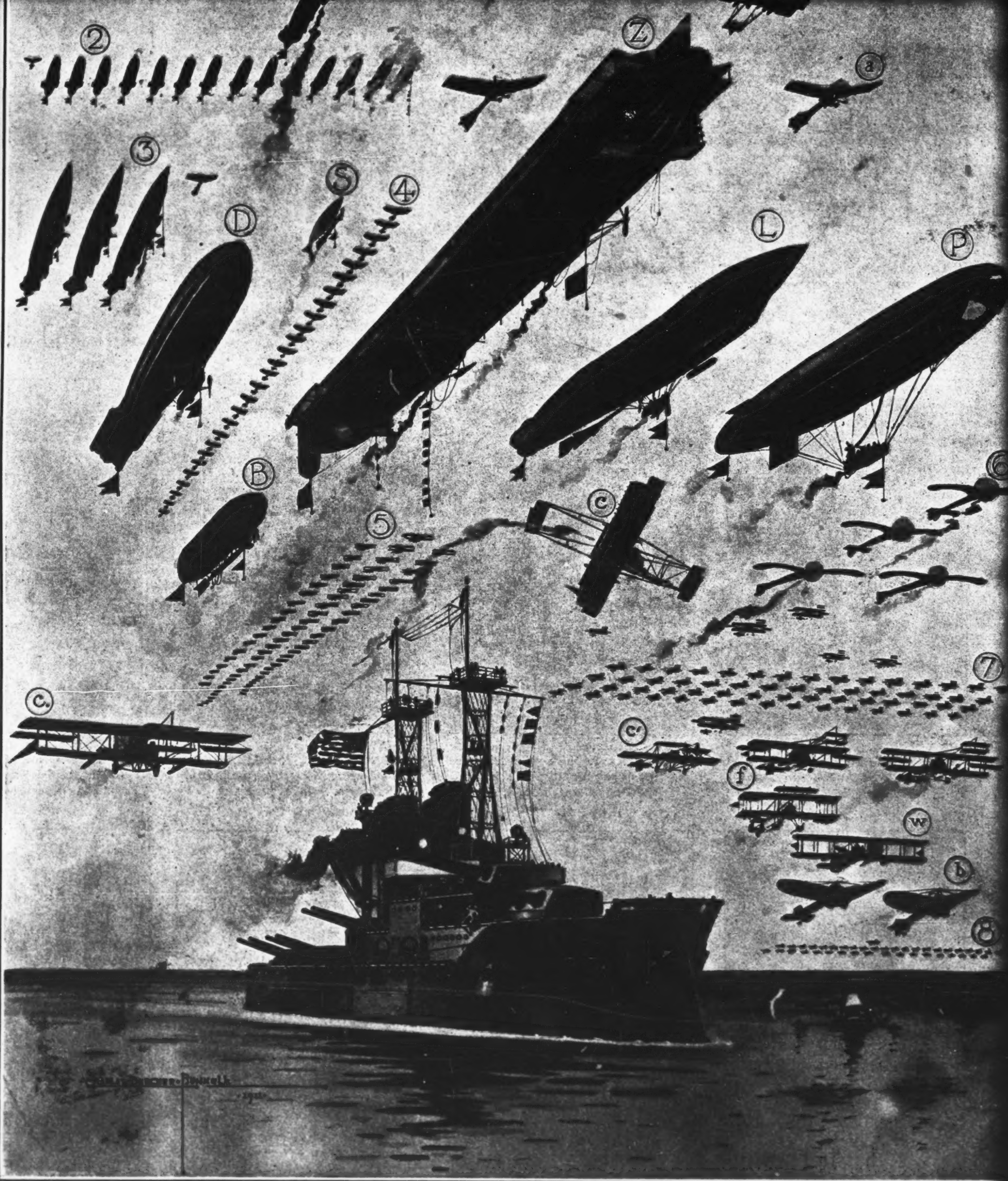
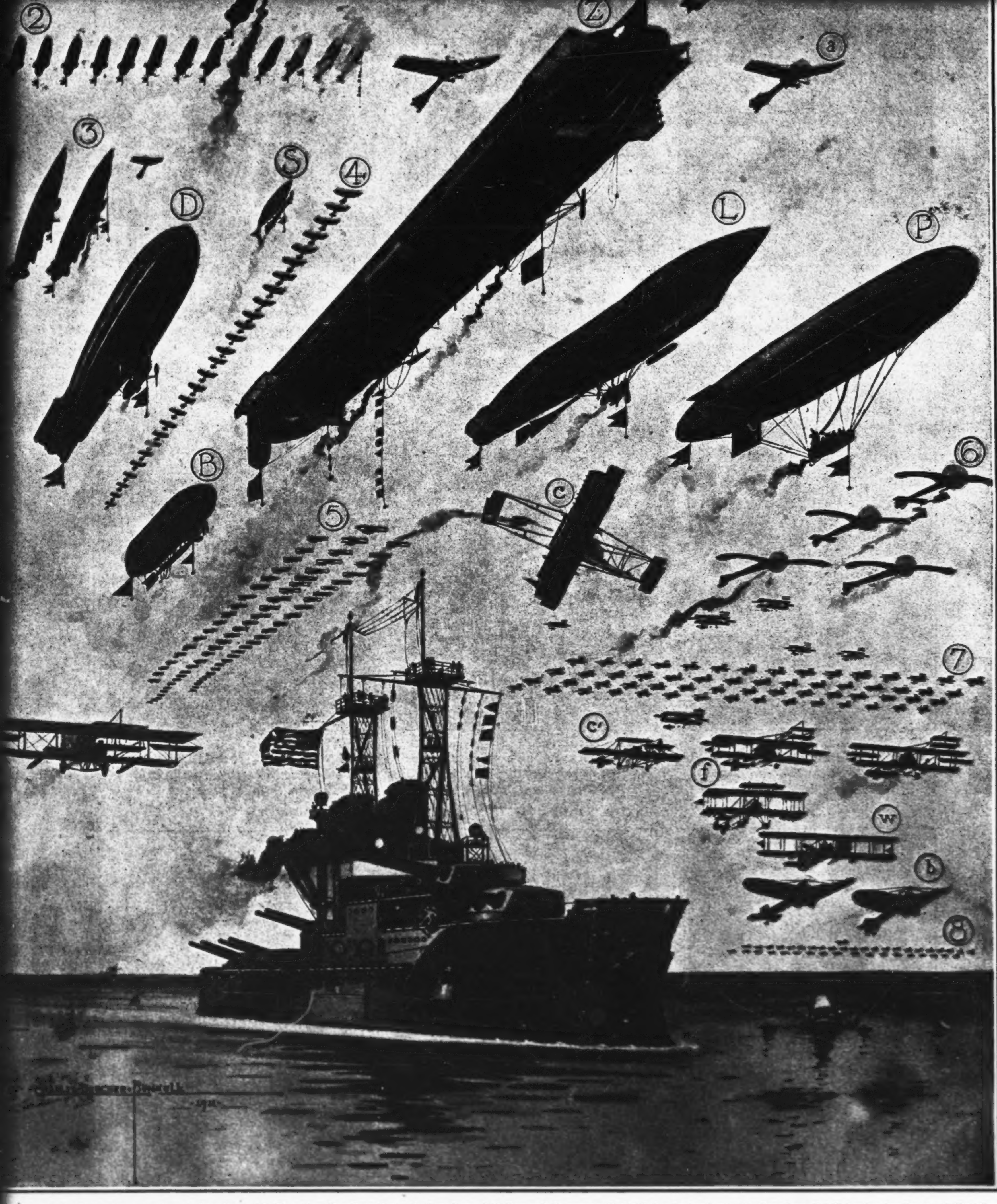


Explanation of the above reference figures, etc.: 1. Squadron of 29 Zeppelins (Dreadnoughts). 2. Squadron of 13 Parsevals in command of 1 Lebandy (cruiser). 3. Squadron of 3 Lebandys (cruisers). 4. Squ of 27 Blériot monoplanes. 5. Squadron of 74 Wright biplanes. 6. Squadron of 4 vanadium racers, Scientific American type. 7. Squadron of 69 "big Curtiss biplanes." 8. Squadron of 46 Curtiss hydro-aeropl Z. Zeppelin dirigible (Dreadnought class). D. Deutsch dirigible (cruiser class). L. Lebandy dirigible (cruiser class). P. Parseval (cruiser). B. Baldwin (scout). S. Santos Dumont (scout). c. Command of aero scouts. c'. Curtiss monoplane. c Scout aero. f. Farman biplane scout. w. Big Wright (scout). b. (2 types) Blériot. a. Antoinette (1 to each flagship and 2 to the commanding officer's ship).

Some mistaken enthusiasts believe that the money put into battleships would be better spent in creating fleets of airships. Both will be required—battleships fo warfare of the seas; aeroplanes and dirigibles for the battles of the air.

An aerial fleet in 1911

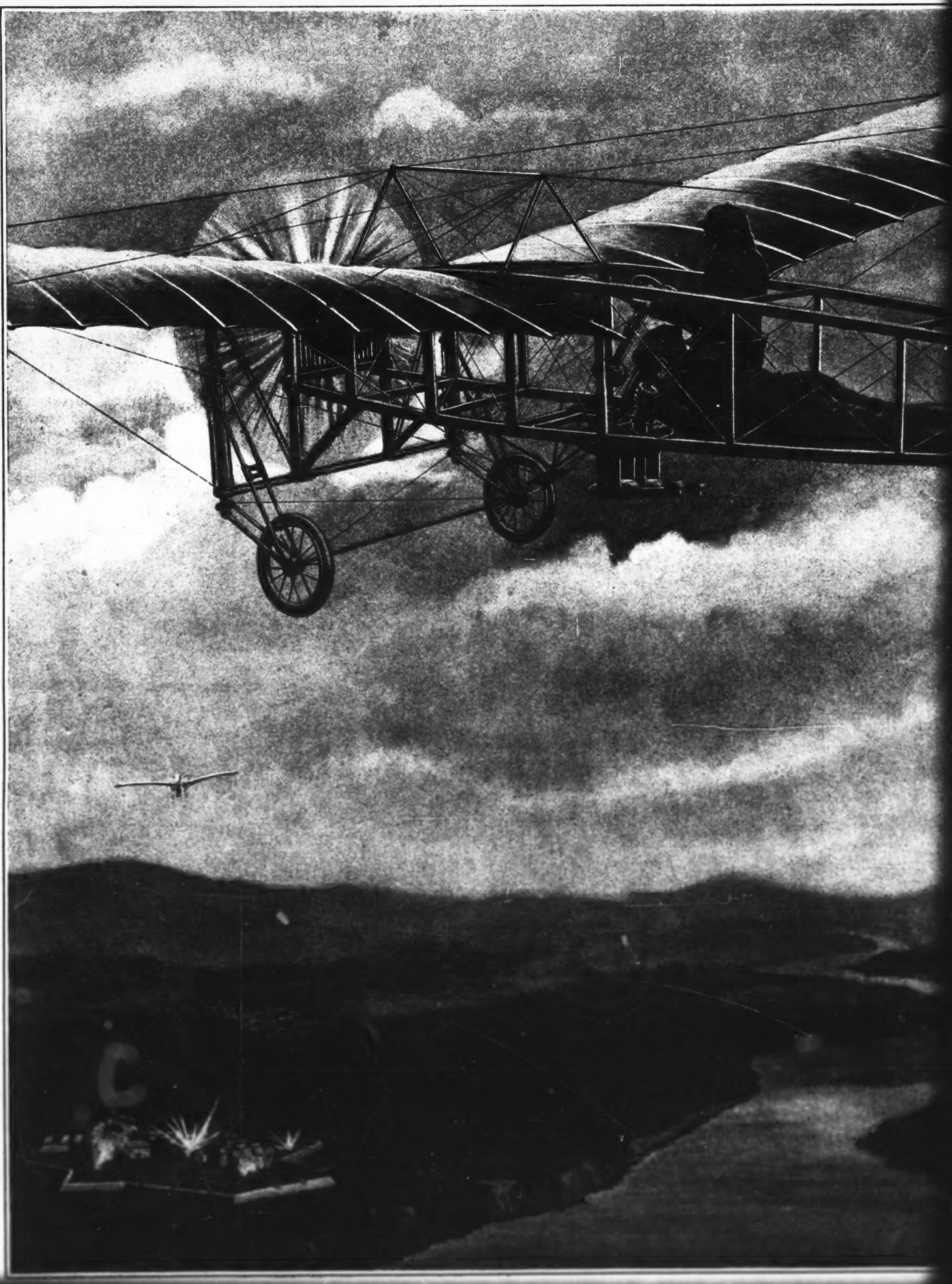


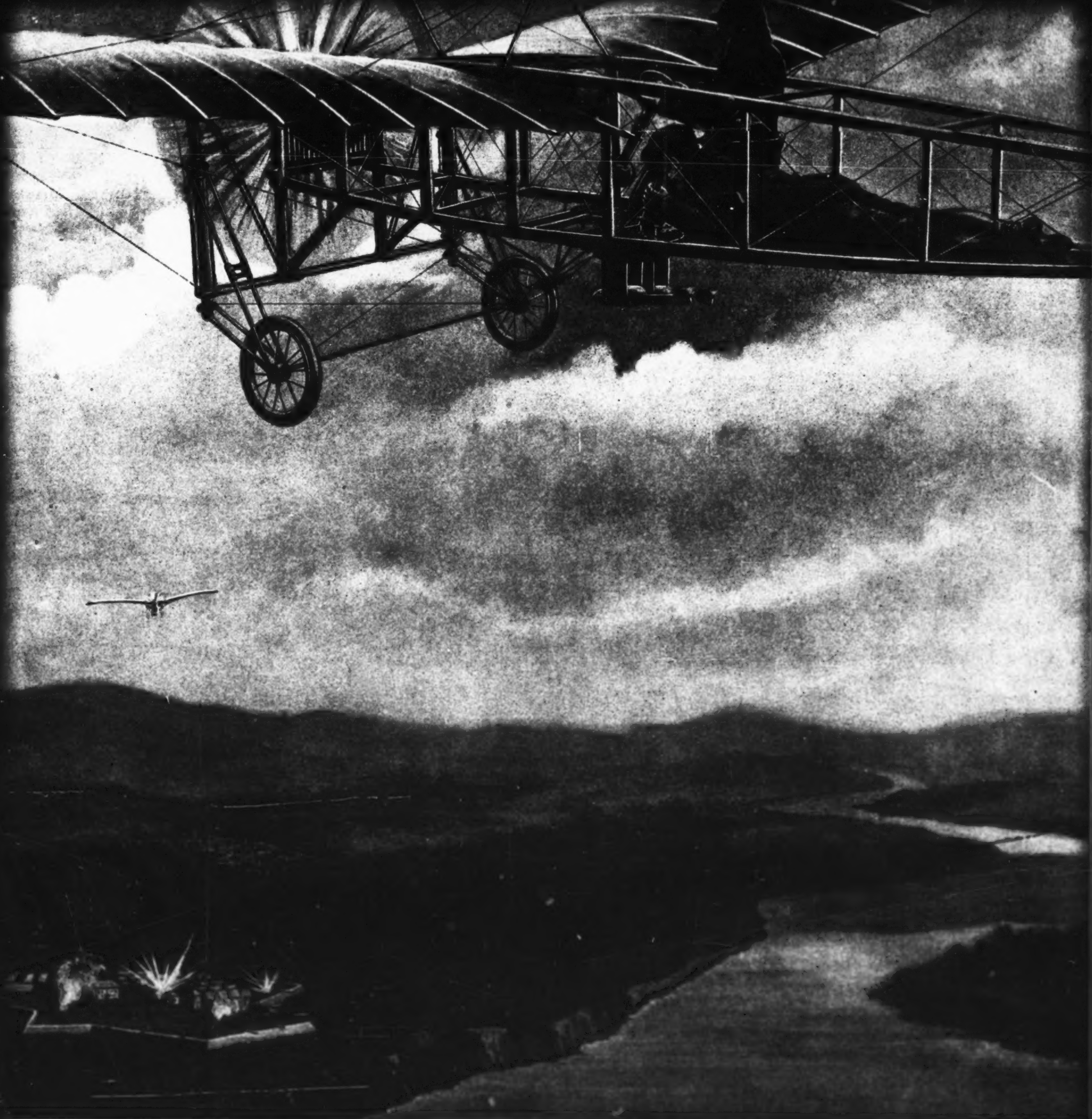
f the above reference figures, etc.: 1. Squadron of 29 Zeppelins (Dreadnoughts). 2. Squadron of 13 Parsevals in command of 1 Lebaudy (cruiser). 3. Squadron of 3 Lebaudys (cruisers). 4. Squadron t monoplanes. 5. Squadron of 74 Wright biplanes. 6. Squadron of 4 vanadium racers, Scientific American type. 7. Squadron of 60 "big Curtiss biplanes." 8. Squadron of 46 Curtiss hydro-aeroplanes. n dirigible (Dreadnought class). D. Deutsch dirigible (cruiser class). L. Lebaudy dirigible (cruiser class). P. Parseval (cruiser). B. Baldwin (scout). S. Santos Dumont (scout). c. Commander scouts. c'. Curtiss monoplane. e Scout aero. f. Farman biplane scout. w. Big Wright (scout). b. (2 types) Blériot. a. Antoinette (1 to each flagship and 2 to the commanding officer's ship).

taken enthusiasts believe that the money put into battleships would be better spent in creating fleets of airships. Both will be required—battleships for the warfare of the seas; aeroplanes and dirigibles for the battles of the air.

An aerial fleet in 1911

BOMBER





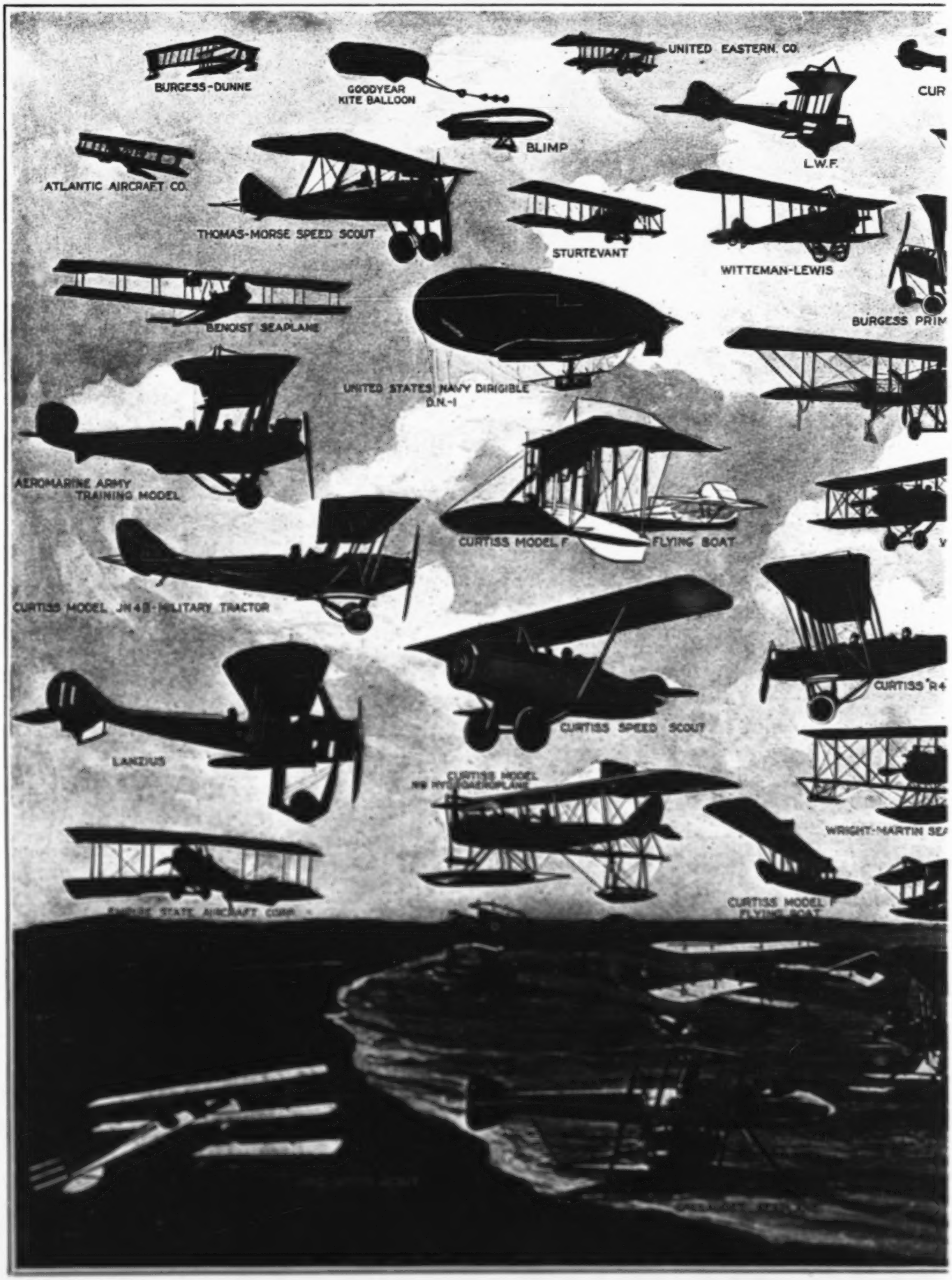
How bombs were dropped in 1911

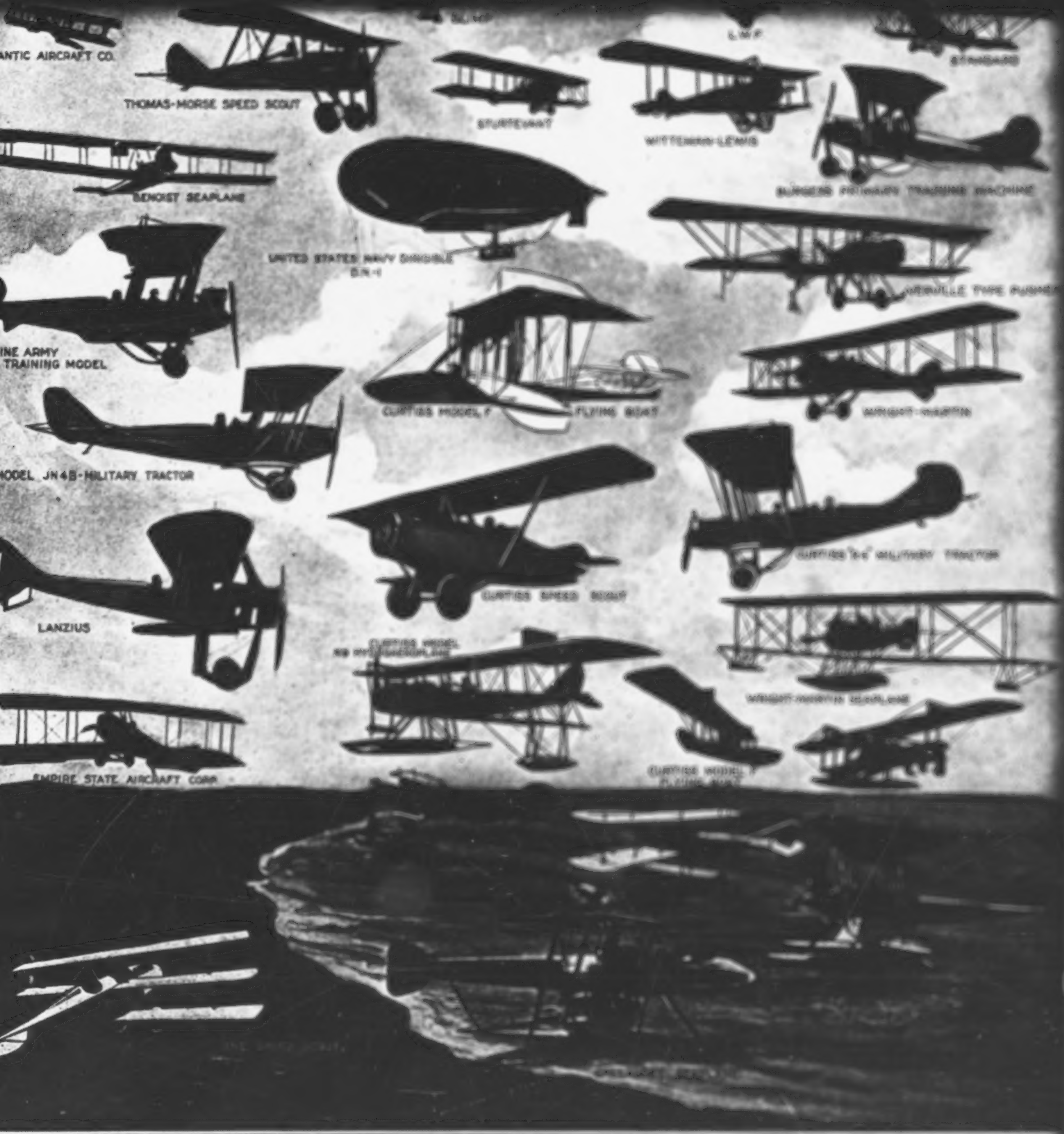
See how small the bombs were.

The bombs were aimed by a bomb sight.

The bomb sight had a telescope.

AIRPLANES


BURGESS-DUNNE
GOODYEAR KITE BALLOON
UNITED EASTERN CO.
CUR
BLIMP
L.W.F.
ATLANTIC AIRCRAFT CO.
THOMAS-MORSE SPEED SCOUT
STURTEVANT
WITTEMAN-LEWIS
BENOIST SEAPLANE
BURGESS PRIM
UNITED STATES NAVY DIRIGIBLE D.N.-I
AEROMARINE ARMY TRAINING MODEL
CURTISS MODEL F FLYING BOAT
V
CURTISS MODEL JN 4B-MILITARY TRACTOR
CURTISS R4
CURTISS SPEED SCOUT
LANZIUS
CURTISS MODEL N9 HYDROAEROPLANE
WRIGHT-MARTIN SEA
EMPIRE STATE AIRCRAFT CORP.
CURTISS MODEL F FLYING BOAT


ANTIC AIRCRAFT CO.
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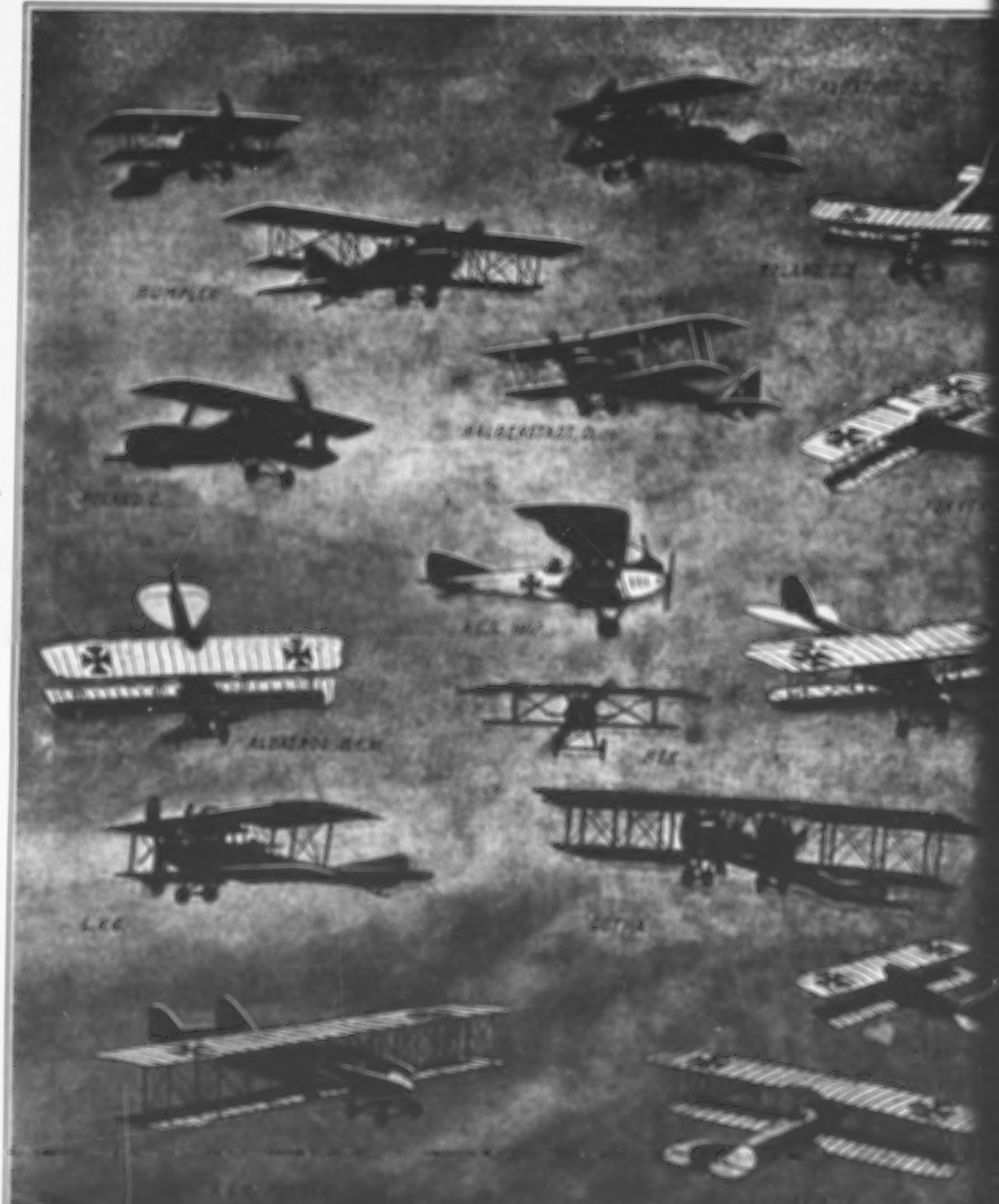
STANDARD
BENOIST SEAPLANE
BURGESS PRIMARY TRAINING MACHINE
UNITED STATES NAVY DIRIGIBLE D.N-1
TYPE PUSHER
INE ARMY TRAINING MODEL
CURTISS MODEL F FLYING BOAT
WRIGHT-MARTIN
MODEL JN4B-MILITARY TRACTOR
CURTISS "R-4" MILITARY TRACTOR
CURTISS SPEED SCOUT
LANZIUS
CURTISS MODEL R6 HYDROAEROPLANE
WRIGHT-MARTIN SEAPLANE
CURTISS MODEL F FLYING BOAT
EMPIRE STATE AIRCRAFT CORP.

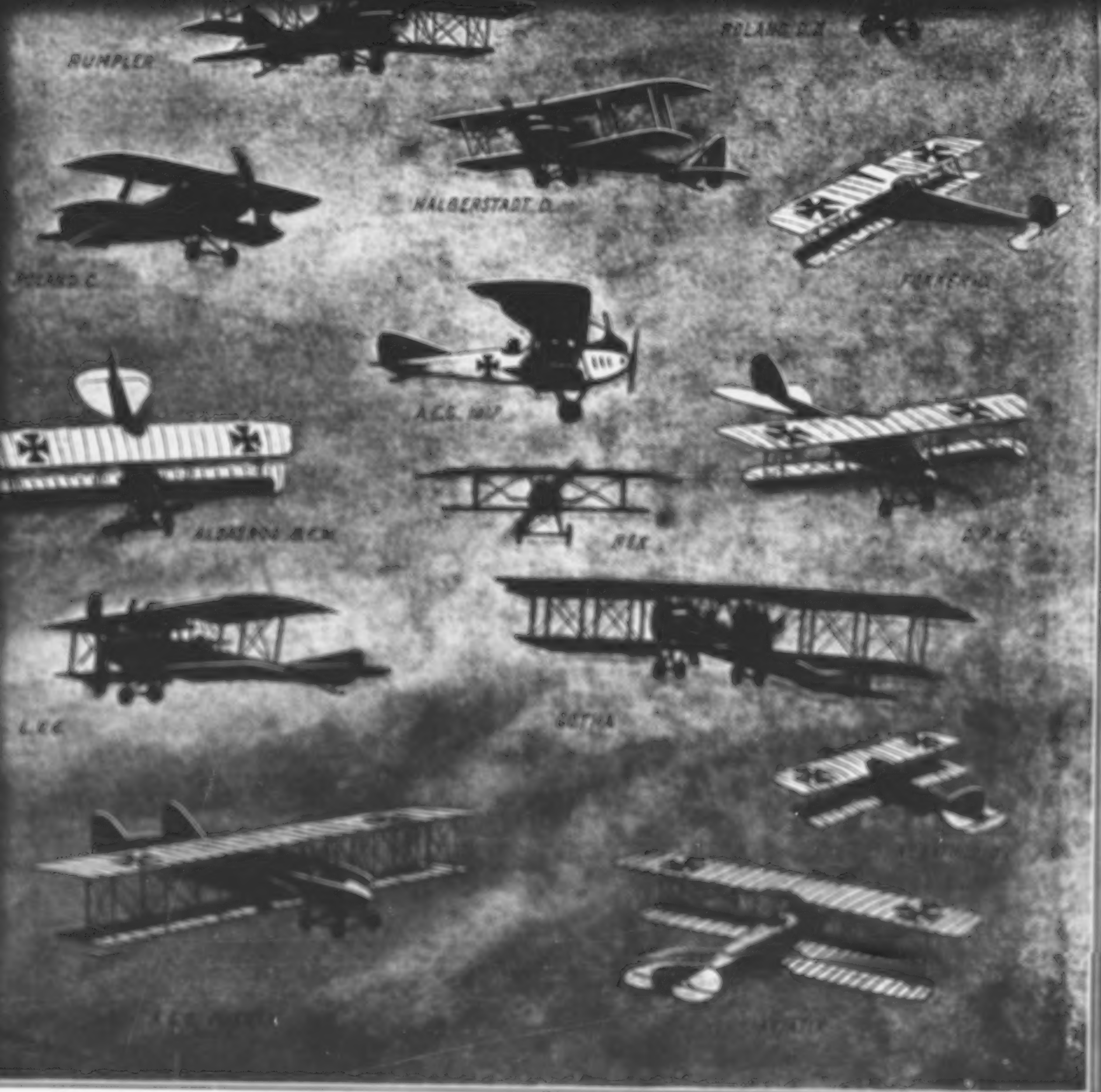
These were American planes in 1917.

They were used in World War I.

Some of them were used by the Allies before the U.S. entered the war.

AIRPLANES


RUMPLER
HALBERSTADT
ALBATROS
L.V.G.
GOTHA


RUMPLER
HALBERSTADT D.
ROLAND C.
A.E.G. 1917
GOTHA

These were German airplanes in 1917.

This was during World War I.

Some of these planes had 200 horsepower motors.

Some of them carried six bombs and 2 guns.

RIFLES

The Rifles of European Fighters

They Have a Range of 4,200 to 5,200 Yards, But That Is Not Their Chief Virtue. They Shoot to Their Sharp-Pointed Bullets, and Flatness of Trajectory Counts for More Than Range

Varied indeed are the rifles used by the warring nations. Germany's Mauser is the best, with the 155-grain bullet and initial velocity of 2,900 foot-seconds. The British mix their rifles and ammunition, which renders uniform sight setting difficult and confuses the troops. The old smoothbore musket of our civil war had a percussion lock, a bore of 0.50 to 0.58 and used bullets that weighed from 450 to 500 grains. Its range was limited and it was very uncertain in its accuracy. The modern military rifle has a bore of about 0.30 and shoots a bullet of about 215 grains. Its effective range is considerably over 1,000 yards, and up to that distance it is wonderfully accurate.

The French use a rifle, the Lebel, that looks like th
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bullet weighs less than one third of the old
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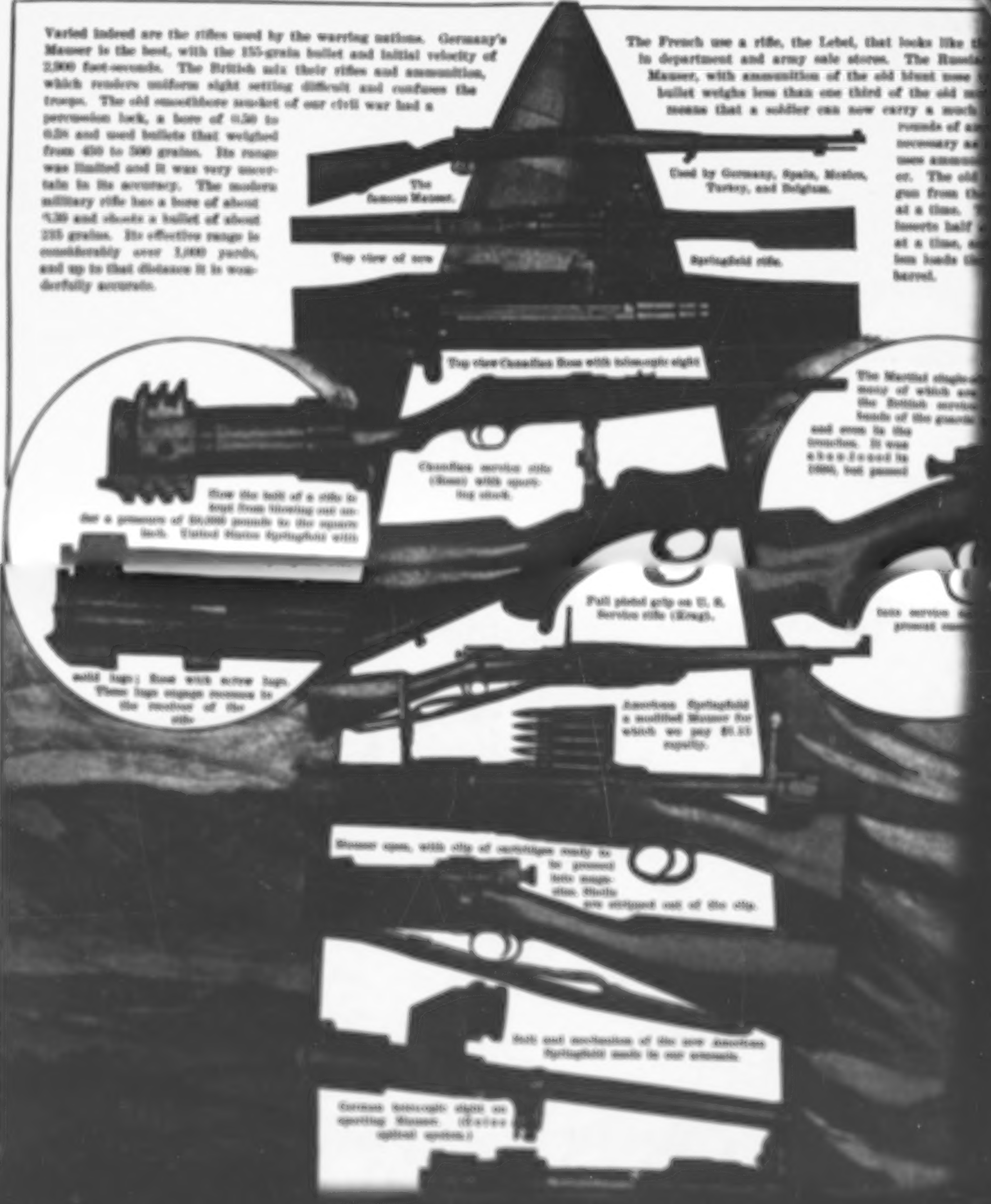
at a time.
inserts half
at a time, a
less loads th
barrel.



The famous Mauser.

Used by Germany, Spain, Mexico, Turkey, and Belgium.

Top view of new Springfield rifle.

Top view Canadian Ross with telescopic sight

Canadian service rifle (Ross) with sporting stock.

How the bolt of a rifle is kept from blowing out under a pressure of 50,000 pounds to the square inch. United States Springfield with solid lugs; Ross with screw lugs. These lugs engage recesses in the receiver of the rifle

The Martini single-
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the British service
hands of the guards
and even in the trenches. It was abandoned in 1890, but passed

Full pistol grip on U. S. Service rifle (Krag).

ints service
present

American Springfield a modified Mauser for which we pay $1.15 royalty.

Mauser open, with clip of cartridges ready to be pressed into magazine. Shells are stripped out of the clip.

Bolt and mechanism of the new American Springfield made in our arsenals.

German telescopic sight on sporting Mauser. (Zeiss optical system.)

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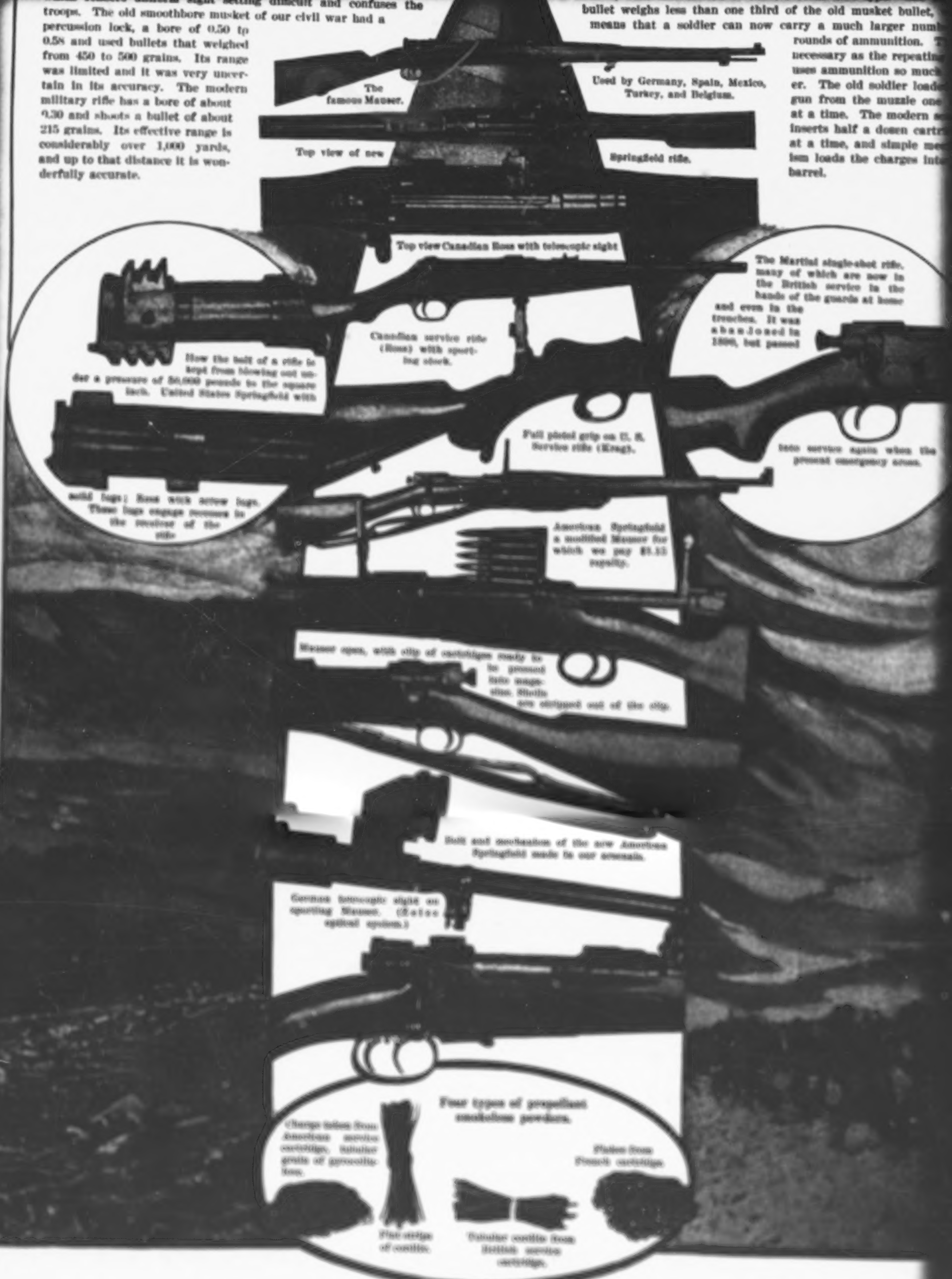

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Four types of propellant smokeless powders.

Charge taken from American service cartridge, tubular grain of pyrocellulose.

Flat strips of cordite.

Tubular cordite from British service cartridge.

Flakes from French cartridge.

The Rifles of European Fighters

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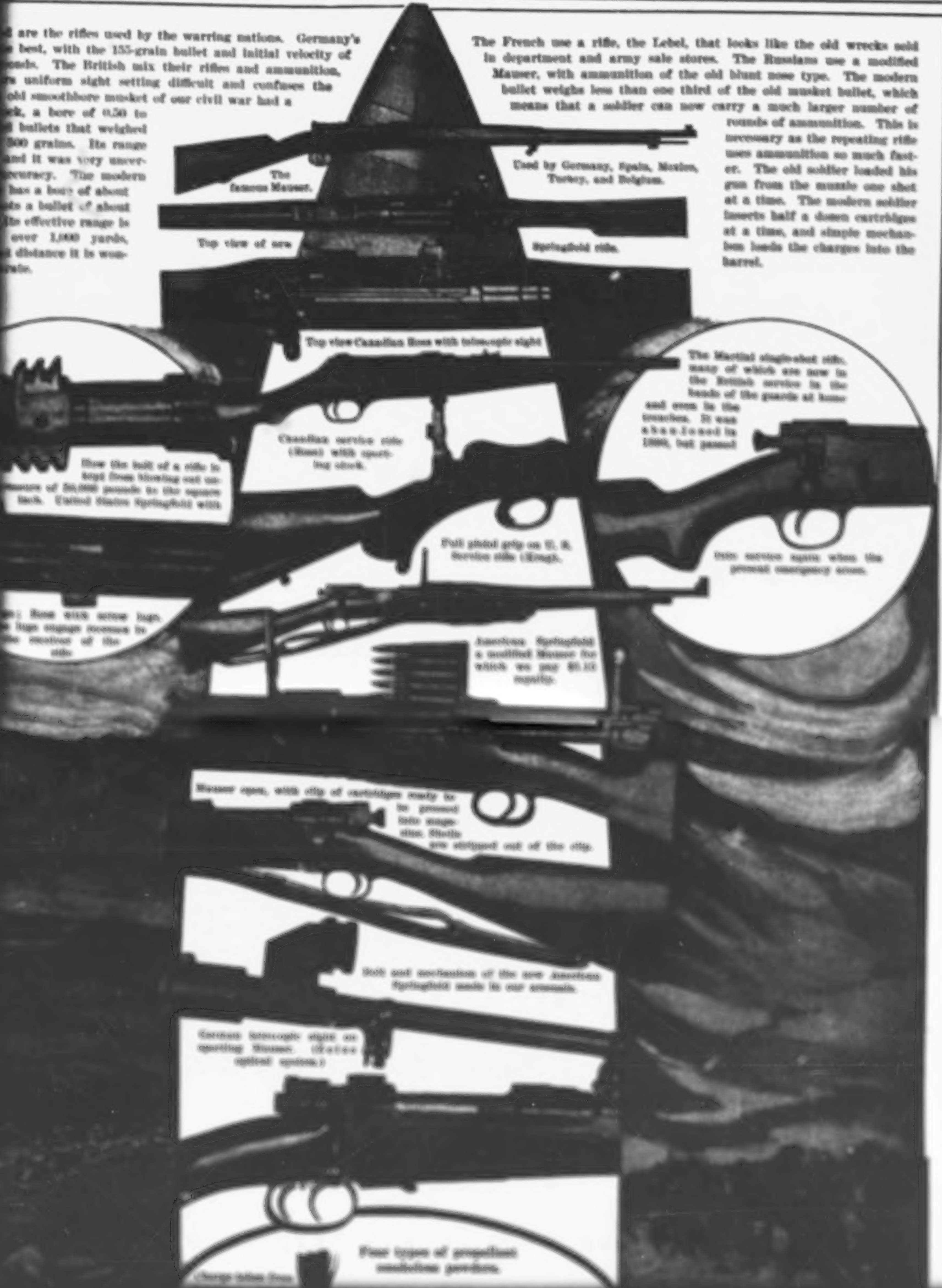

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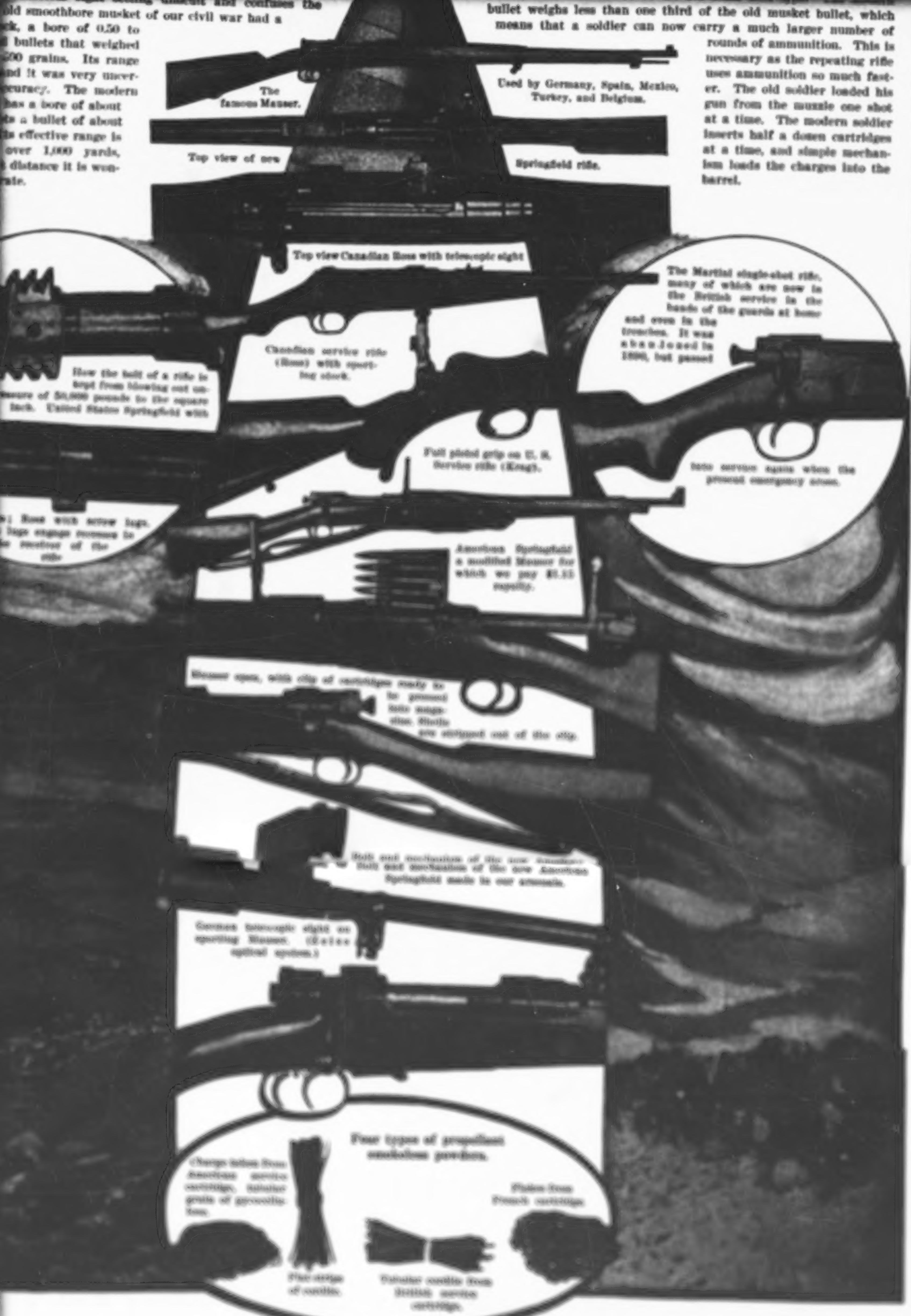
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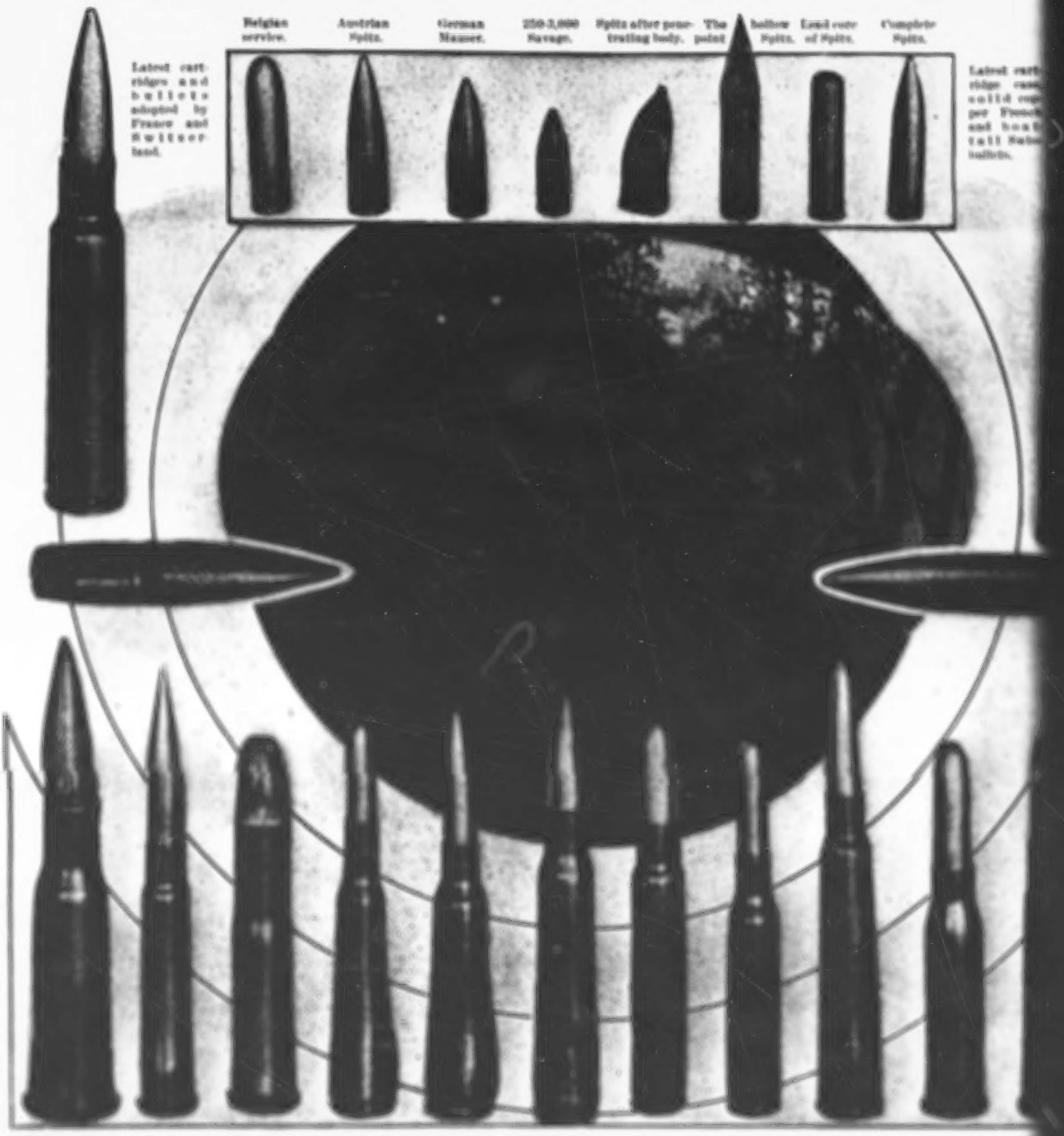
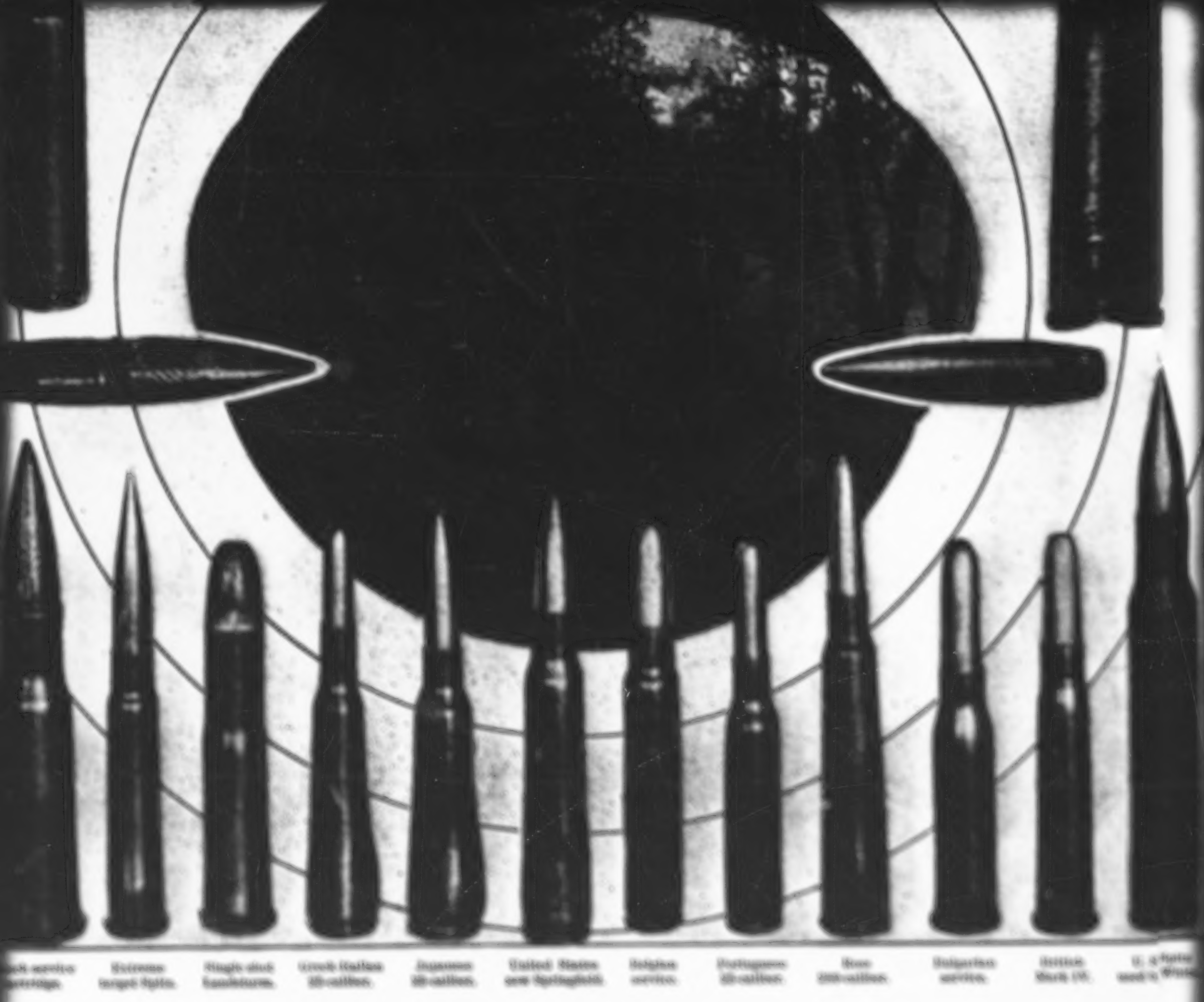
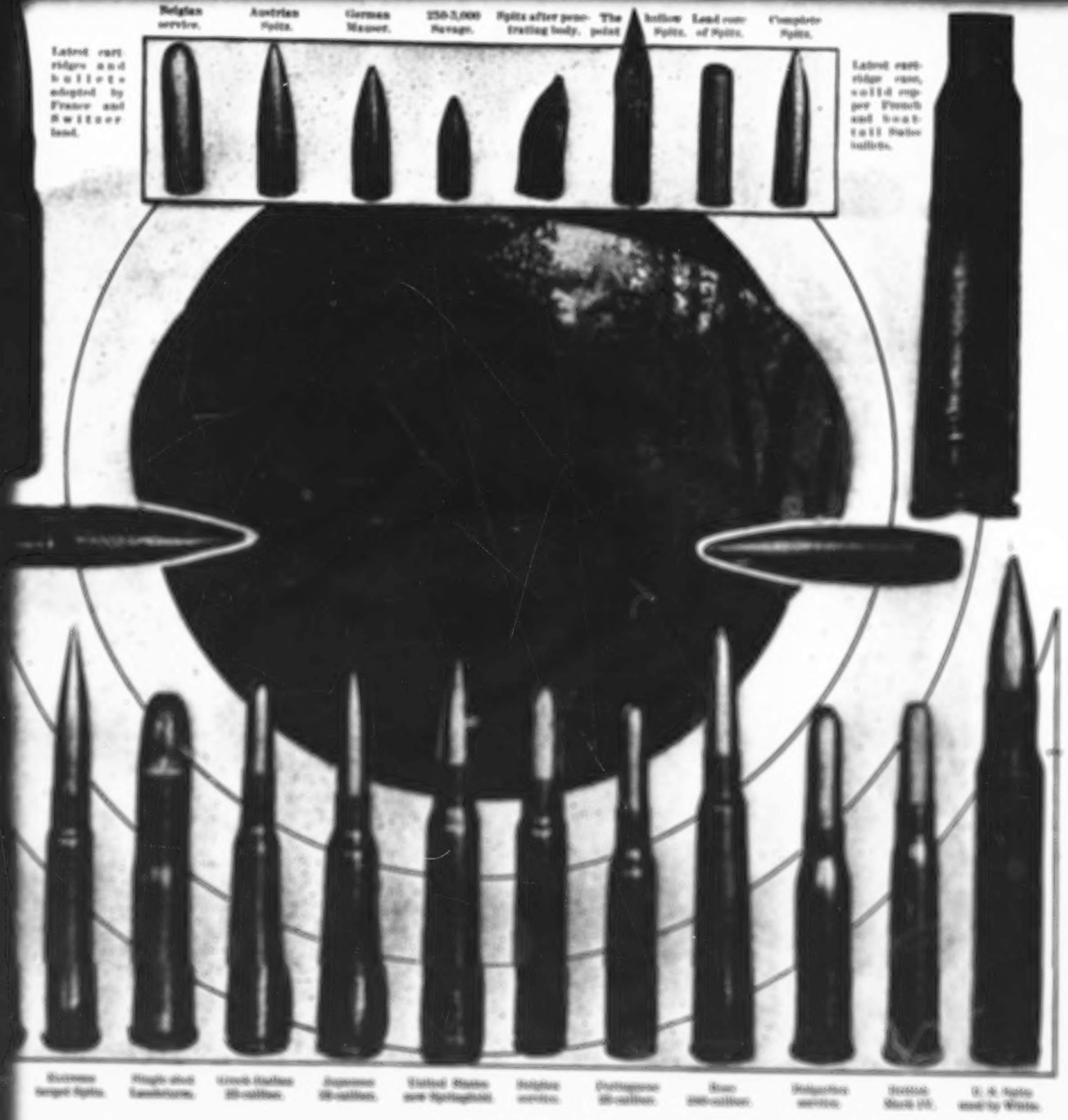
BULLETS


Latest cartridge and bullets adopted by France and Switzerland.
Belgian service.
Austrian Spitz.
German Mauser.
250-3,000 Savage.
Spitz after penetrating body.
The pointed hollow Spitz.
Lead core of Spitz.
Complete Spitz.
Latest cart
ridge case
solid copp
per French
and boat
tail Swiss
bullets.
French service cartridge.
Extreme target Spitz.
Single shot Landsturm.
Greek-Italian 25-calibre.
Japanese 25-calibre.
United States new Springfield.
Belgian service.
Portuguese 25-calibre.
Ross 280-calibre.
Bulgarian service.



Bullets of World War I - 1915

Many different kinds of bullets were used. The U.S. used the Springfield rifle until World War II.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Lead core of Spitz.
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Latest cartridge case, solid copper French and boat-tail Swiss bullets.
Japanese
United States new Springfield.
Belgian service.
Bulgarian service.
British Mark VI.
U. S. Spitz used by White.

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LOCOMOTIVES

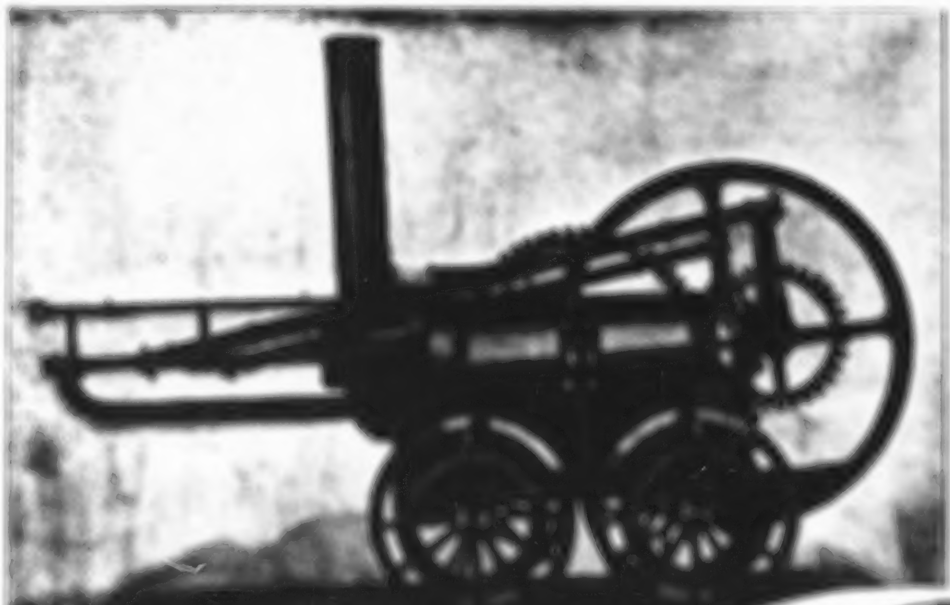


Fig. 1.—Trevithick's Engine. 1803. First Locomotive to Run on Rails.

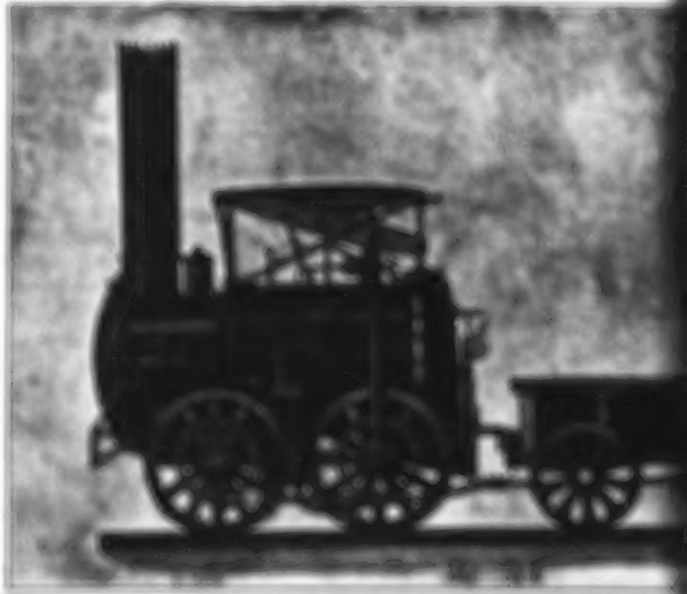


Fig. 2.—"Stourbridge Lion," 1829. Fi
to Turn a Wheel in the U. S.

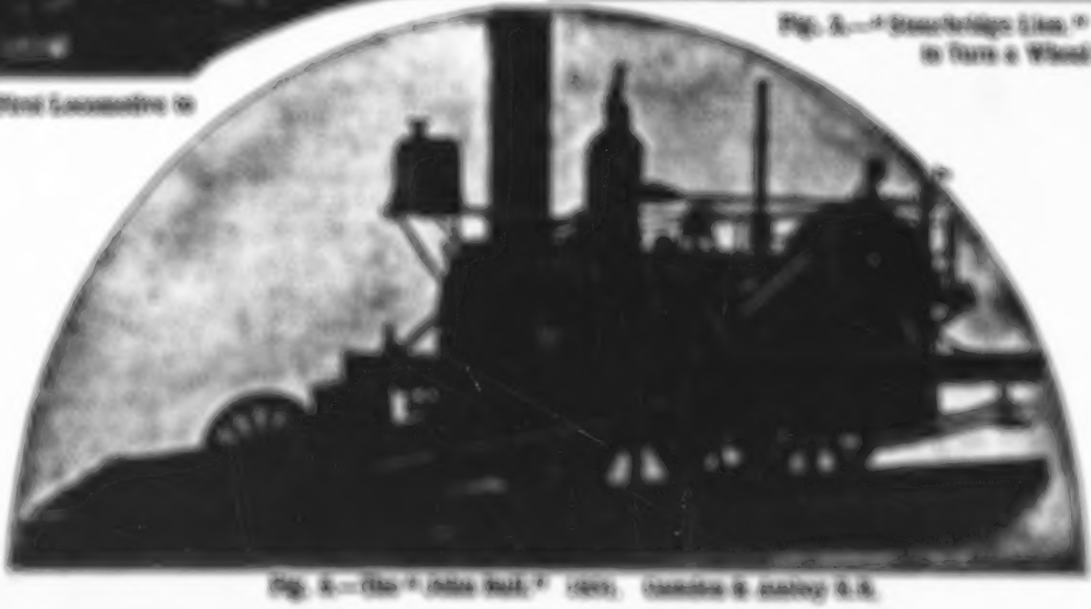


Fig. 3.—The "John Bull," 1831. Camden & Amboy R.R.

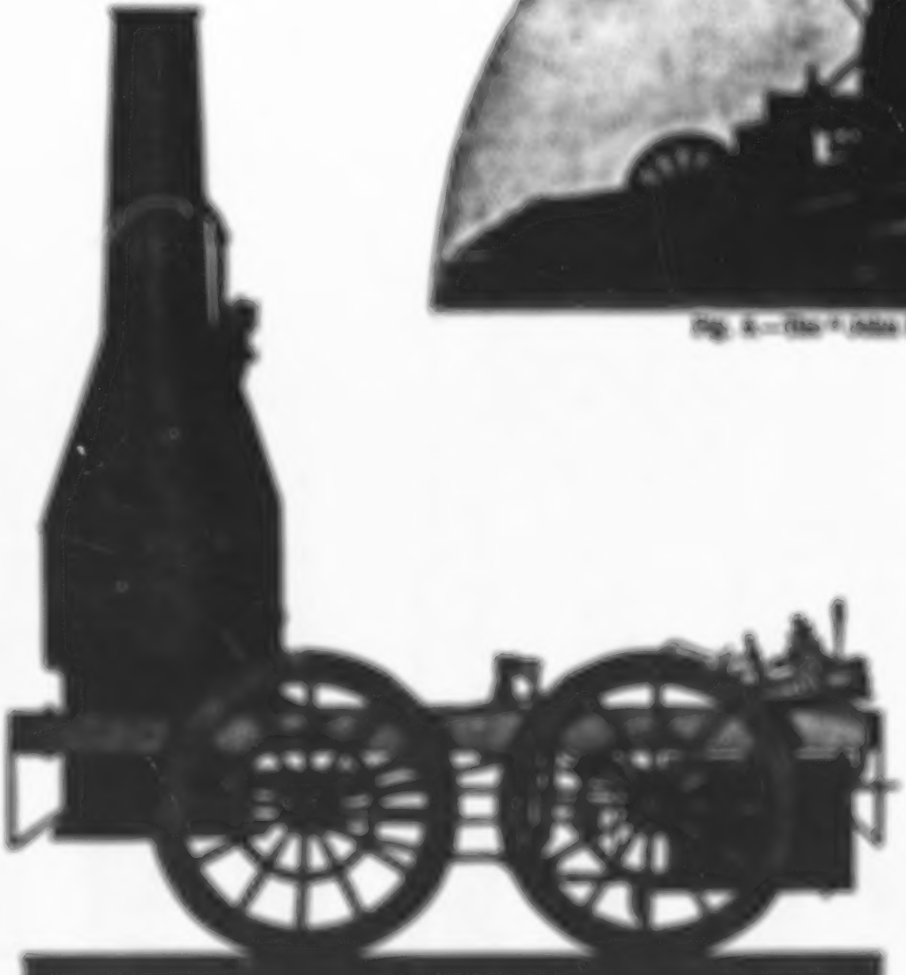


Fig. 4.—"The Best Friend." First Locomotive in Actual Service in U. S. 1830

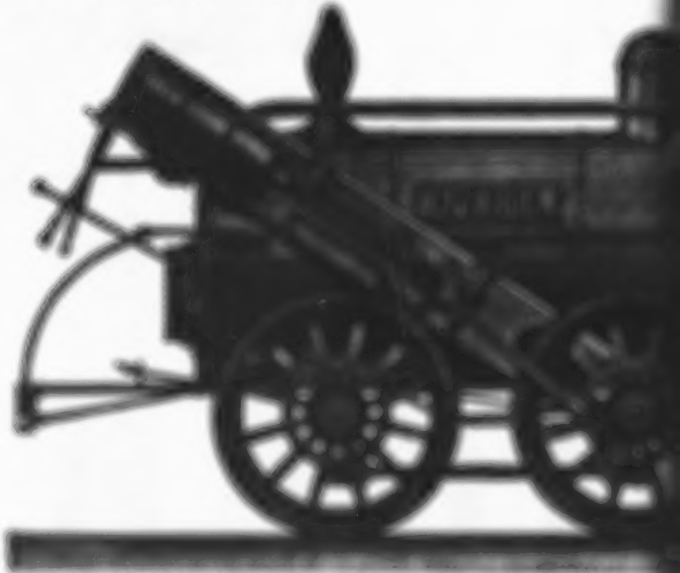
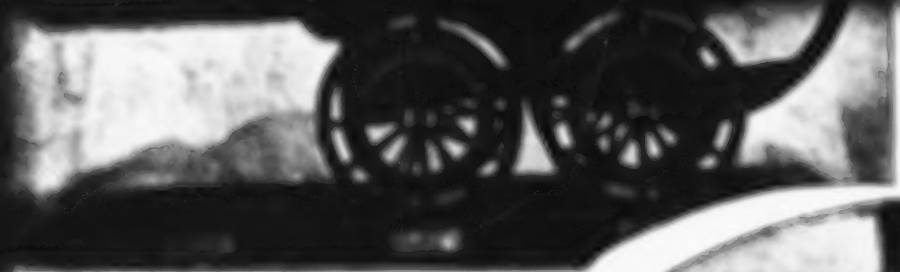


Fig. 5.—Stephenson's Engine. 1829. First Locomotive



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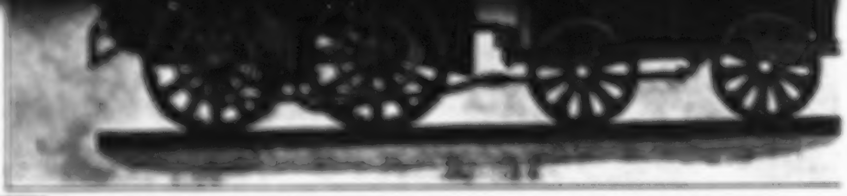

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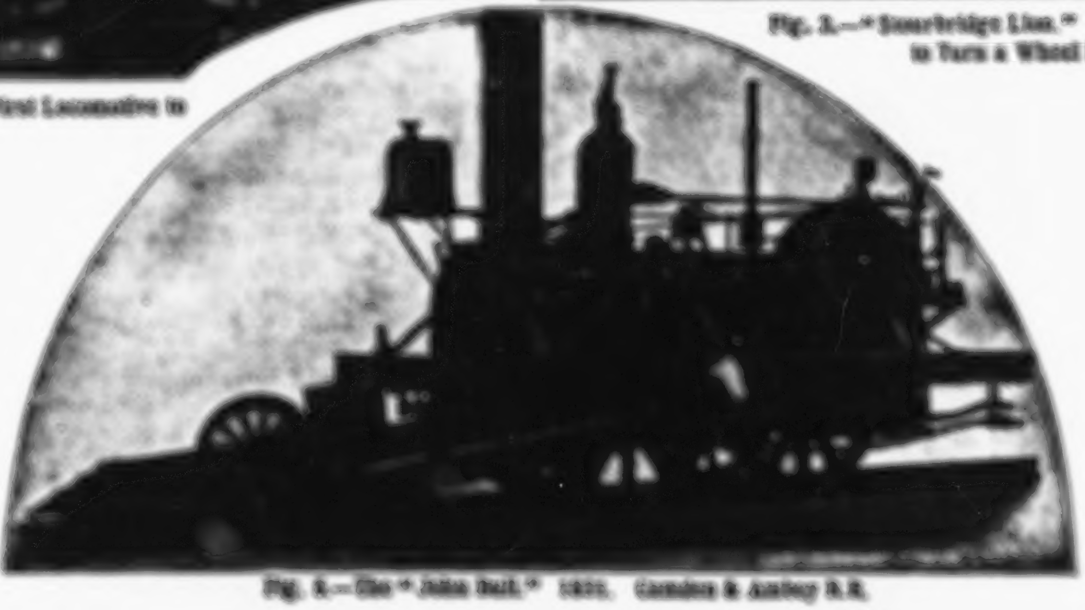

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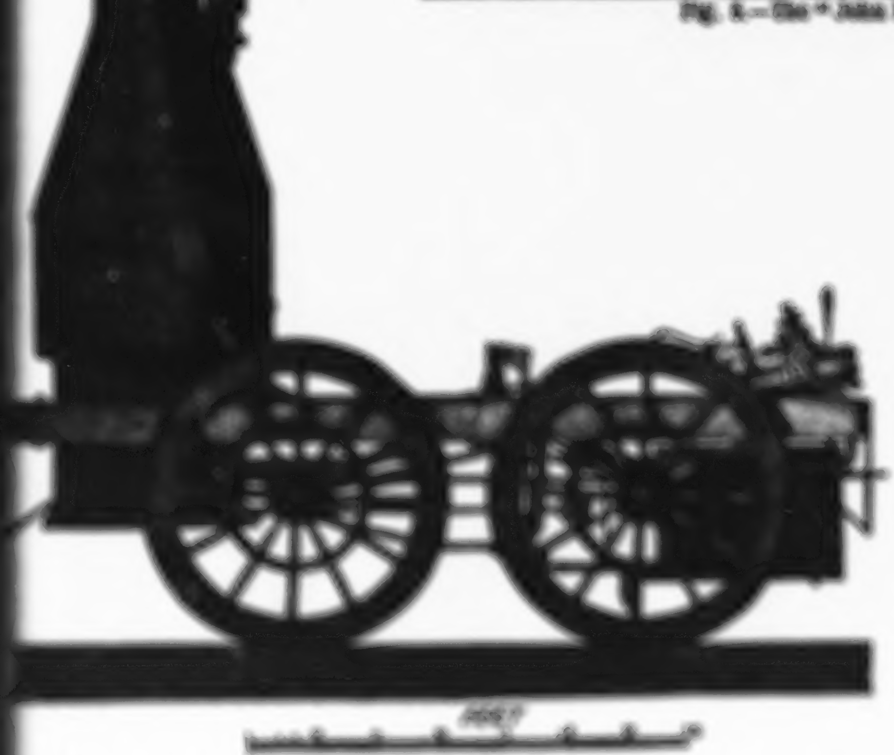

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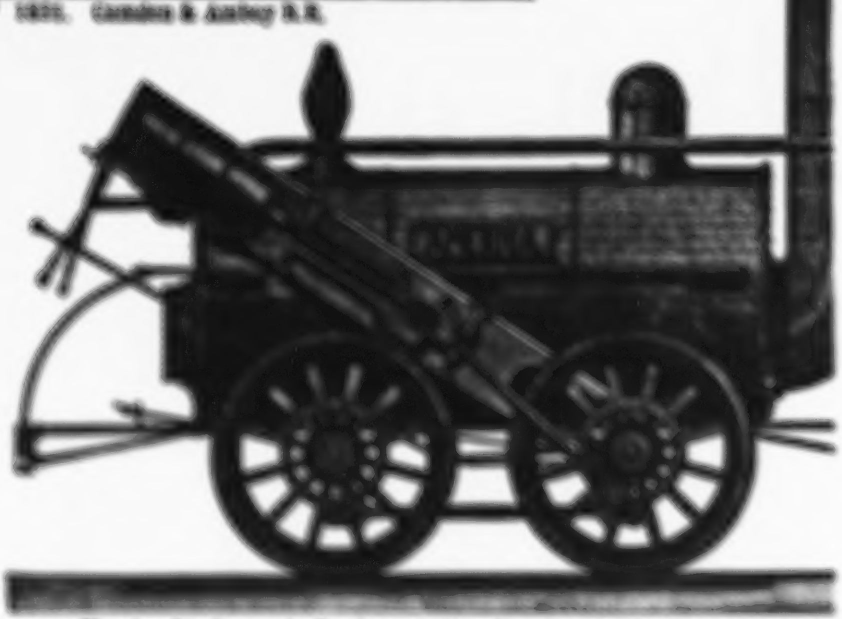


Fig. 5.—Stephenson's Engine. 1828. First Locomotive Seen in Americ

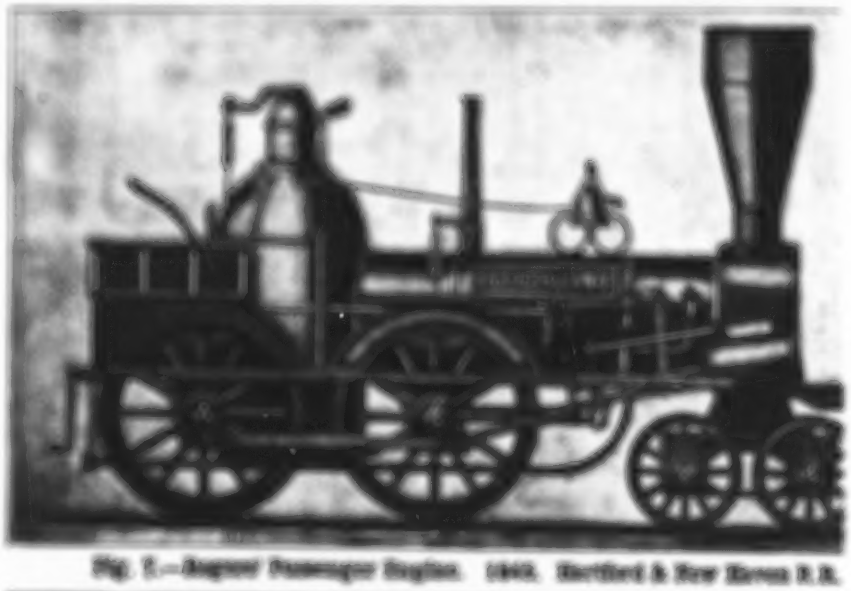


Fig. 7.—Rogers' Passenger Engine. 1845. Hartford & New Haven R.R.

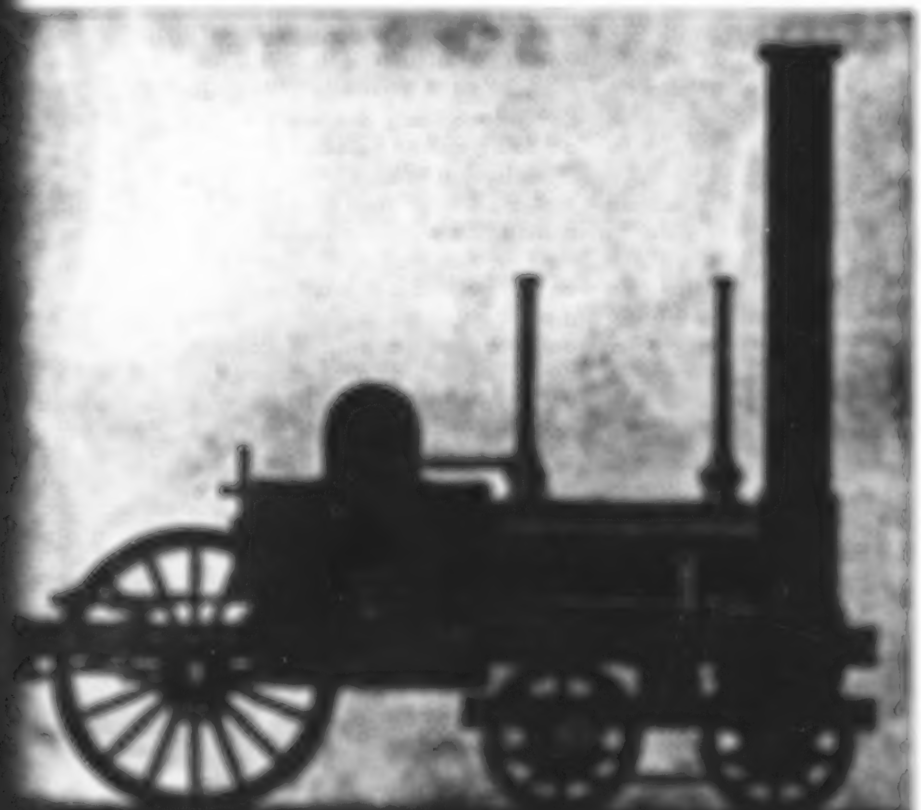


Fig. 6.—The "Experiment." 1832. First Engine With a Leading Truck.

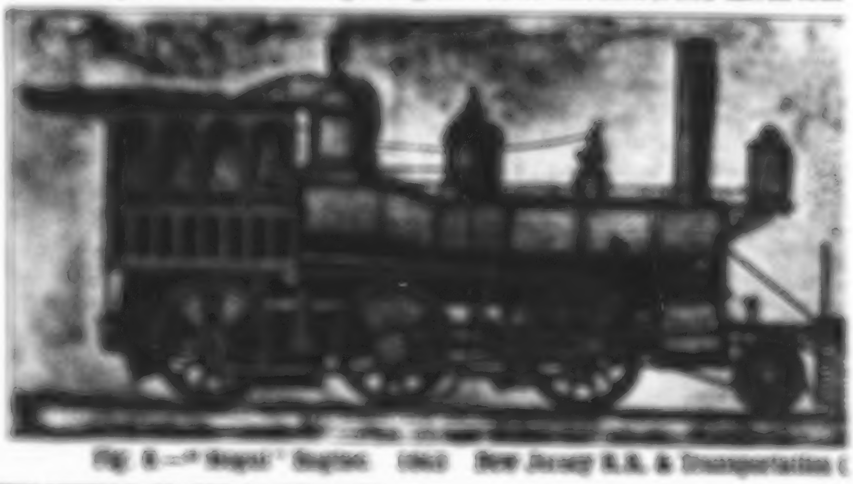


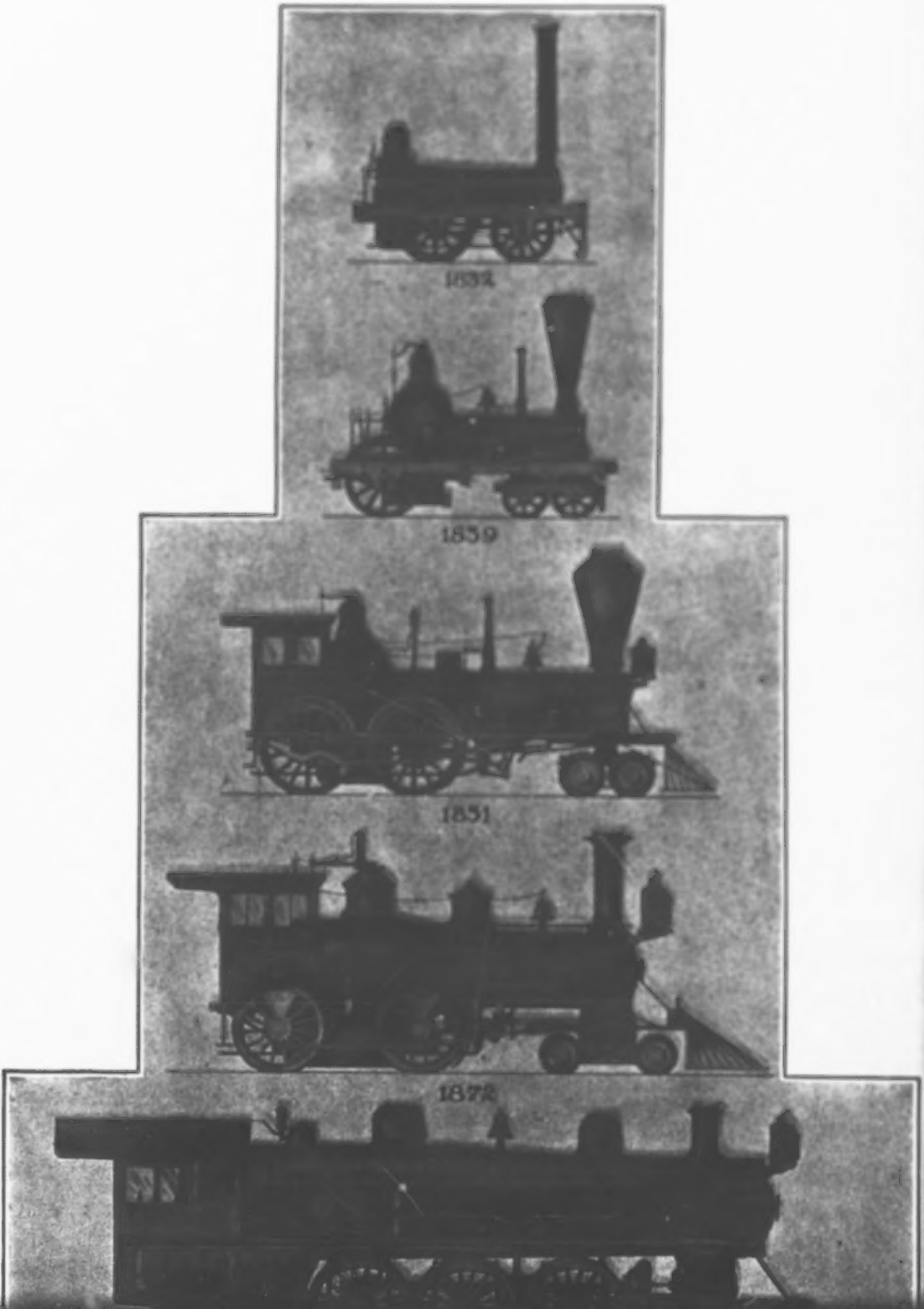
Fig. 8.—"Royal" Engine. 1843. New Jersey R.R. & Transportation C

SOME TYPES ILLUSTRATING THE DEVELOPMENT OF THE LOCOMOTIVE.

LOCOMOTIVES

The Growth of American Locomotives and Rail

From the Baby 5-Ton Engine of 1832 to the 188-Ton Giant


1832
1839
1851
1872

OMOTIVES

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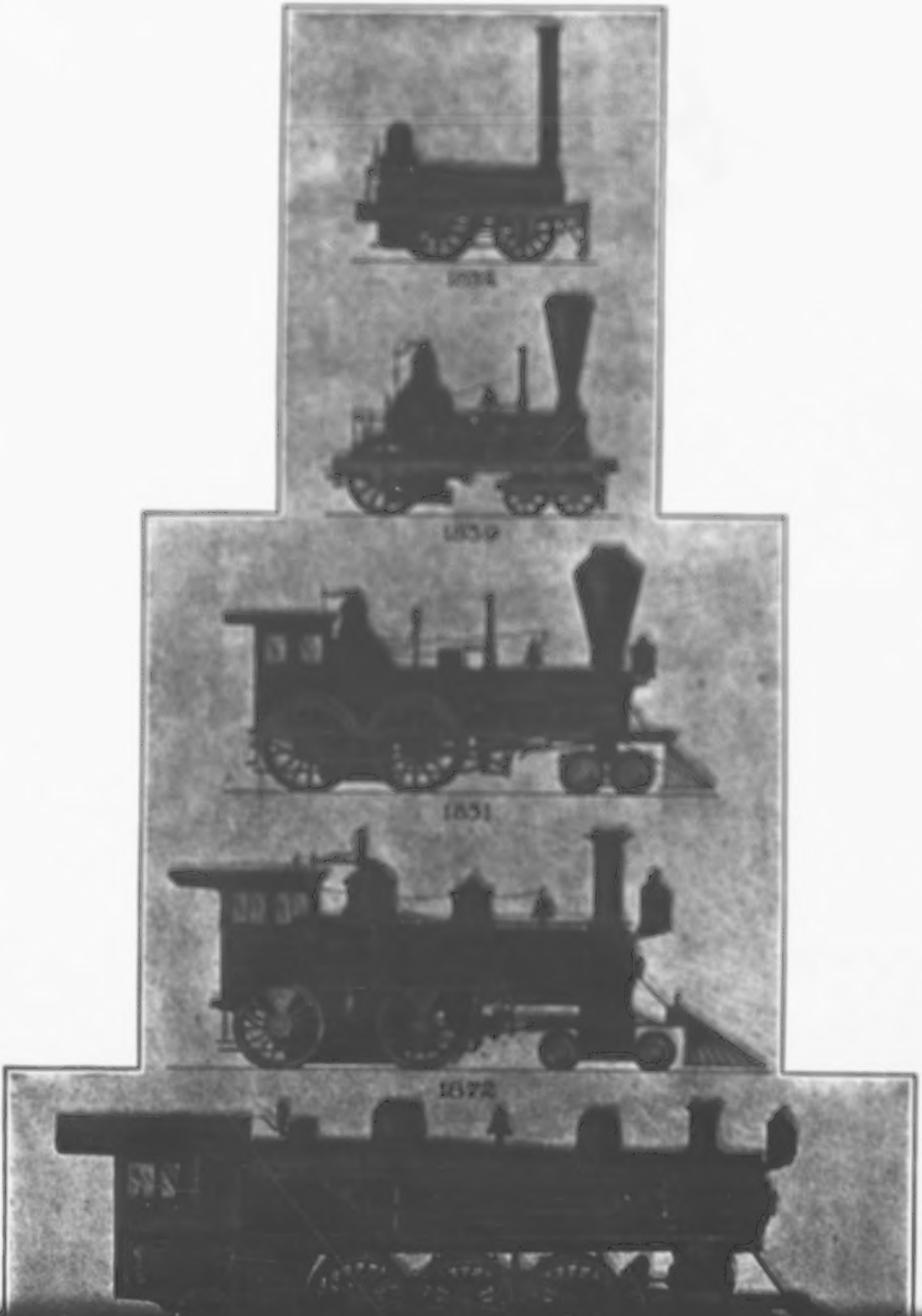
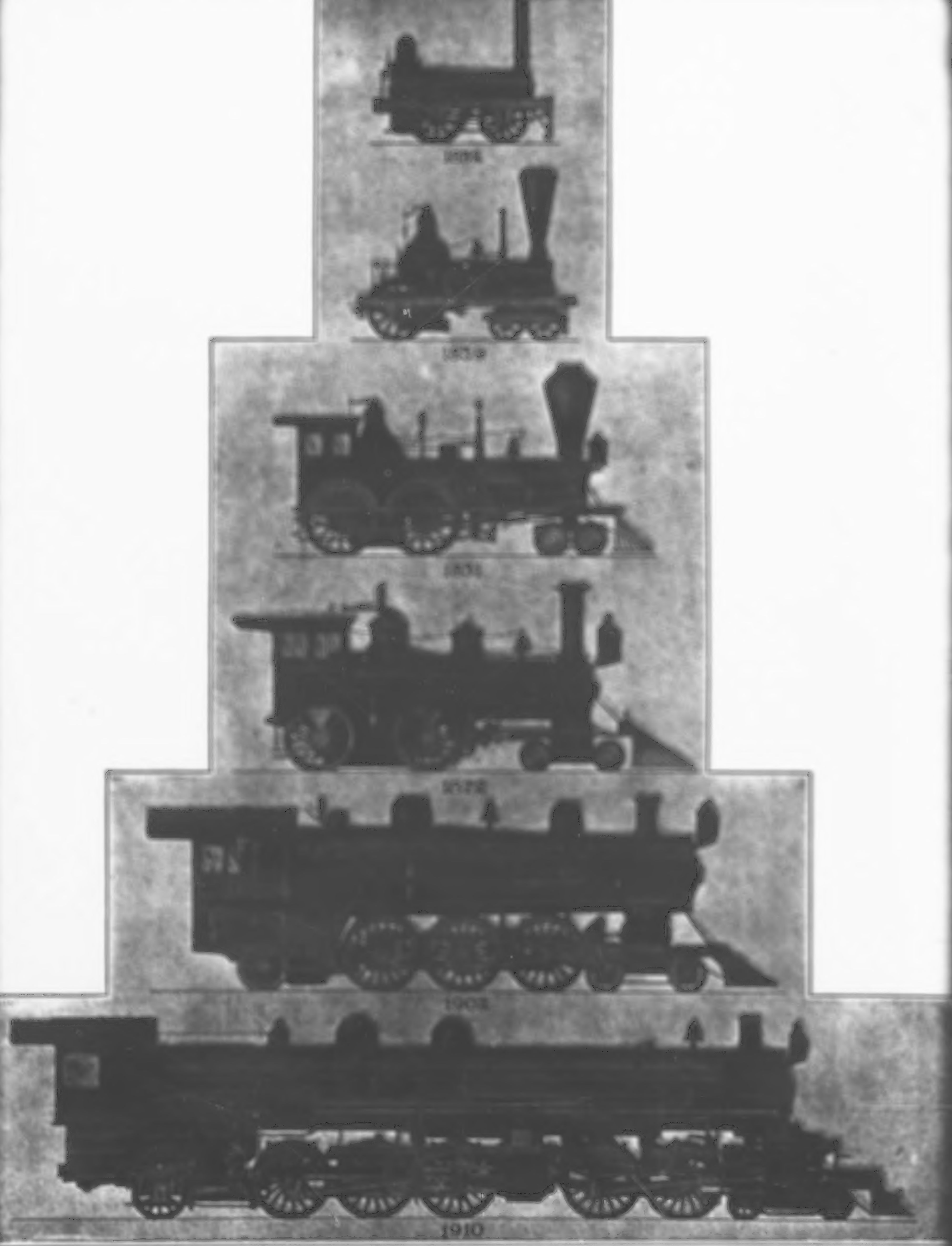
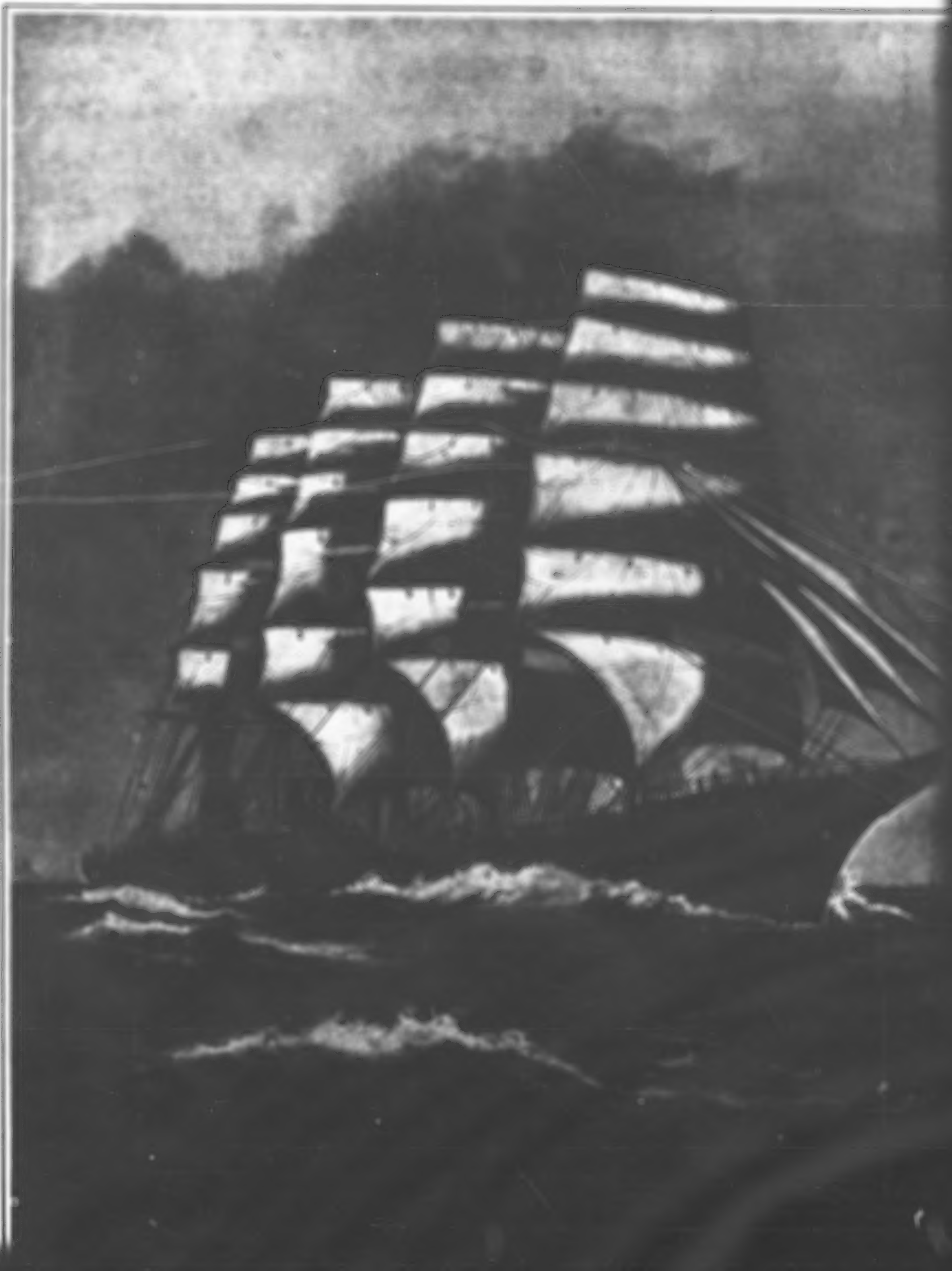
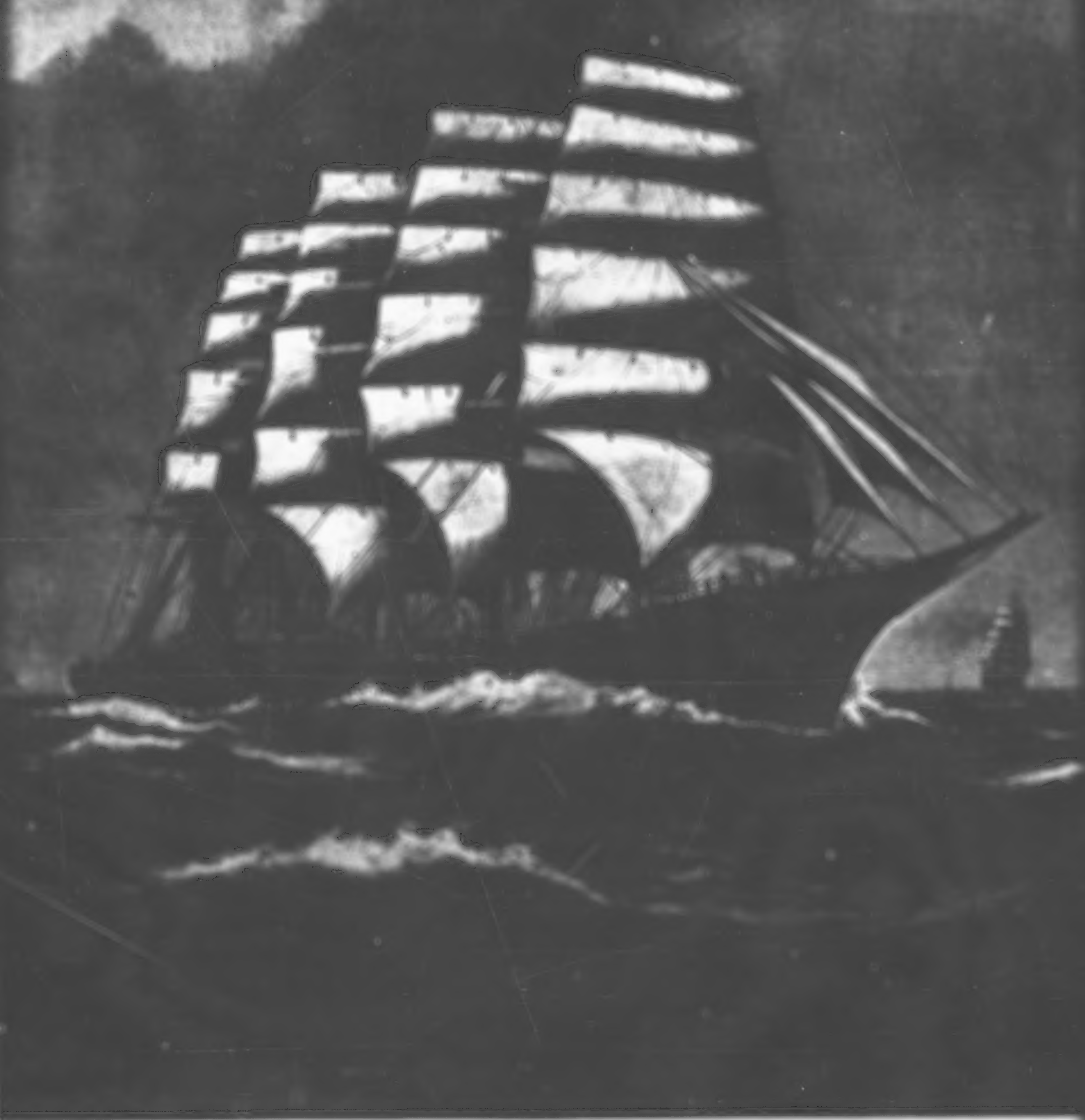

1832
1839
1851
1872


1832
1839
1851
1872
1902
1910

This engraving, drawn to a uniform scale, shows the growth of the American passenger locomotive from the "Old Ironsides," 5 tons in weight, of 1832 to the powerful Atchison & Santa Fe locomotive of 1910, weighing 188 tons.

SHIP



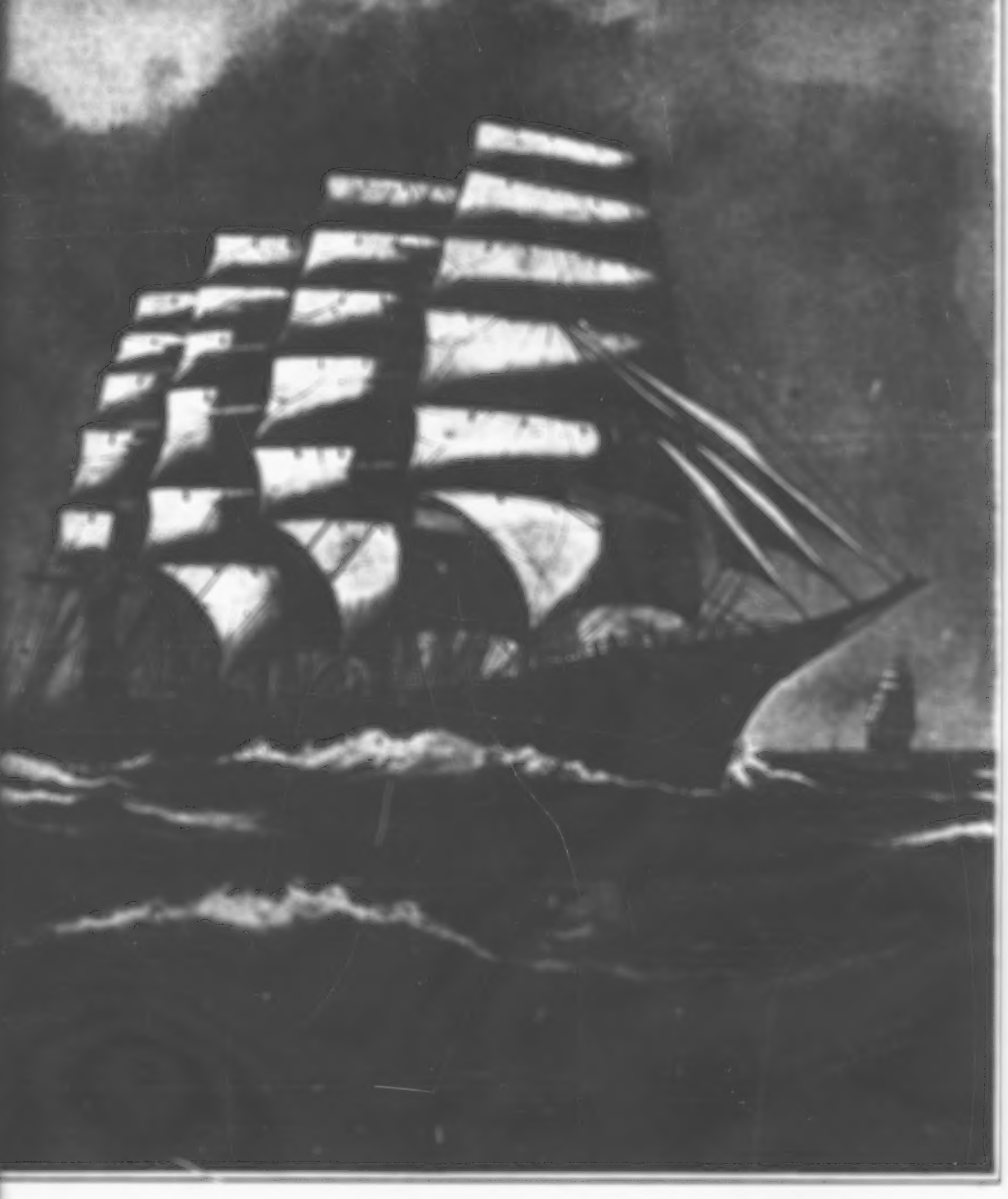


Sailing ship - 1906   Draft, loaded - 26 feet, 9 i

Length on Deck - 441 feet Carrying capacity - 8,000 to

Beam - 53 feet, 8 inches   Displacement - 11,360 tons

Sailspread - 50,000 square feet



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- 53 feet, 8 inches Displacement - 11,360 tons

Sailspread - 50,000 square feet

YACHT

CHT

A racing yacht - 1903

Tip of main boom to tip of spinnaker boom - 201 feet

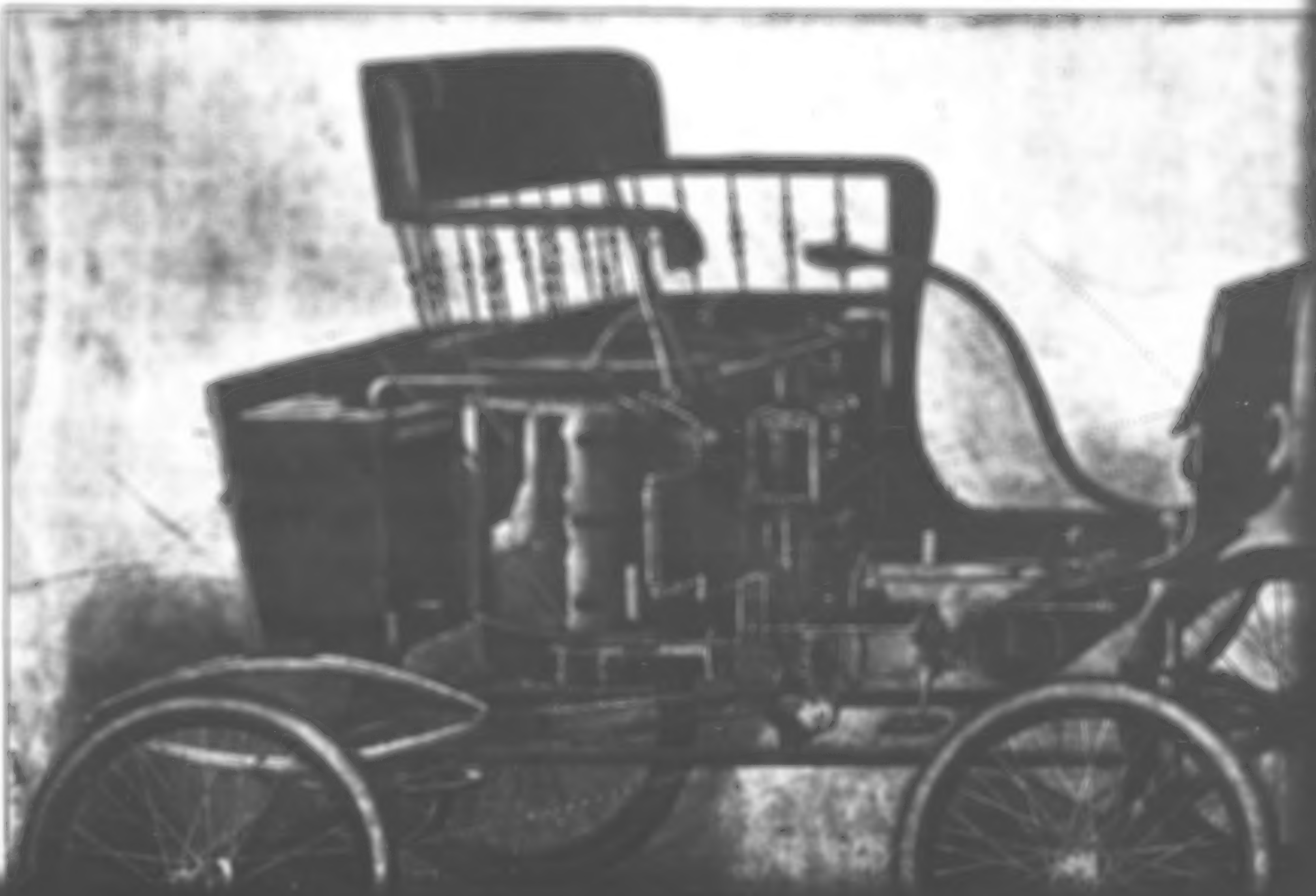
From water to highest point of sail - 190 feet

Total area of sail - 16,169 square feet.

CARS

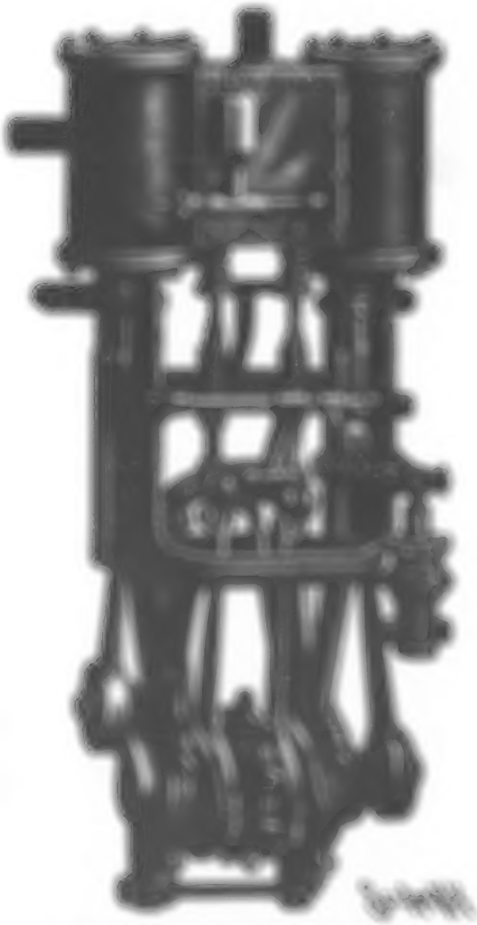
[illegible]

[illegible]

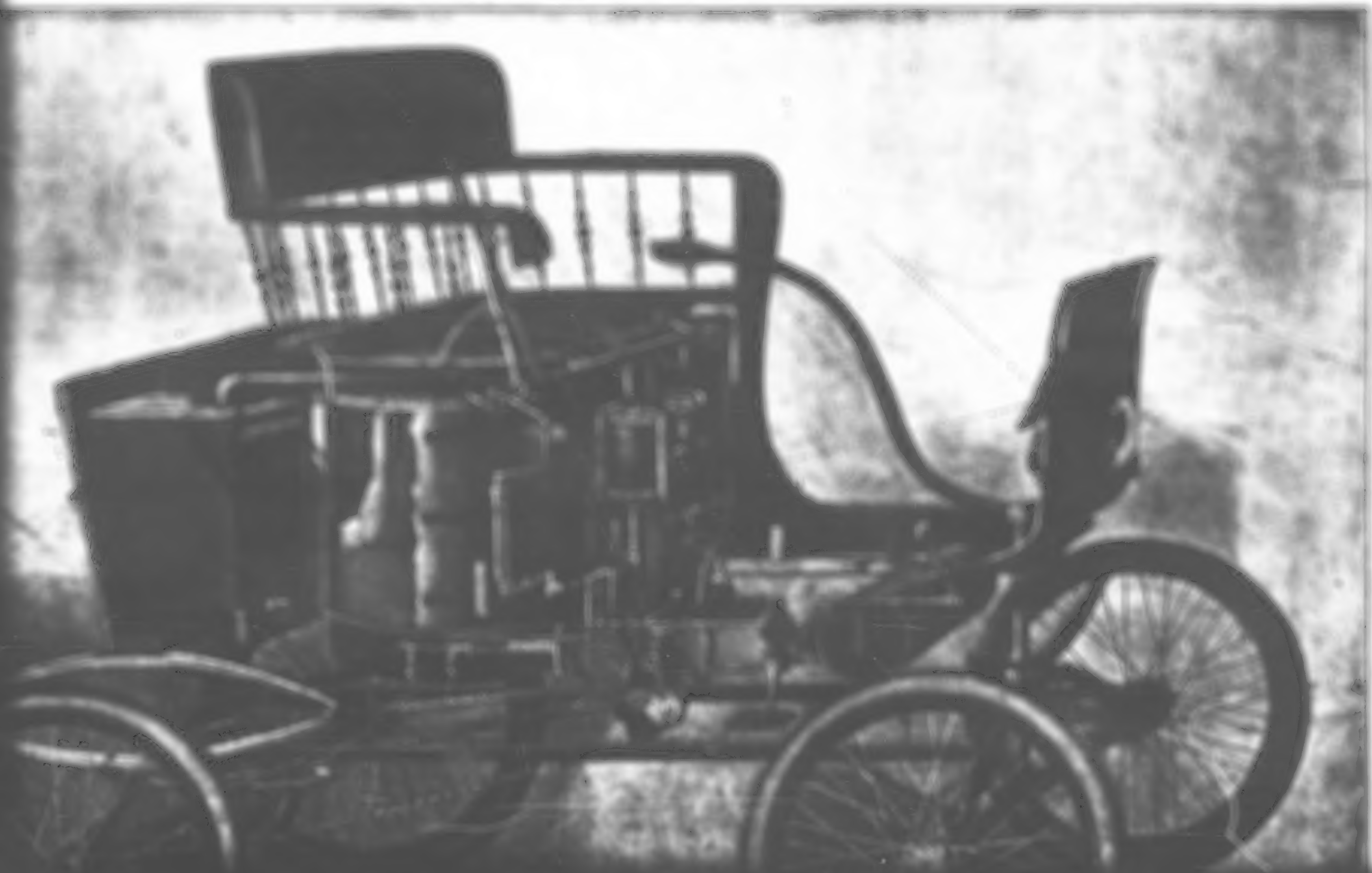


RS

ON THE ROAD

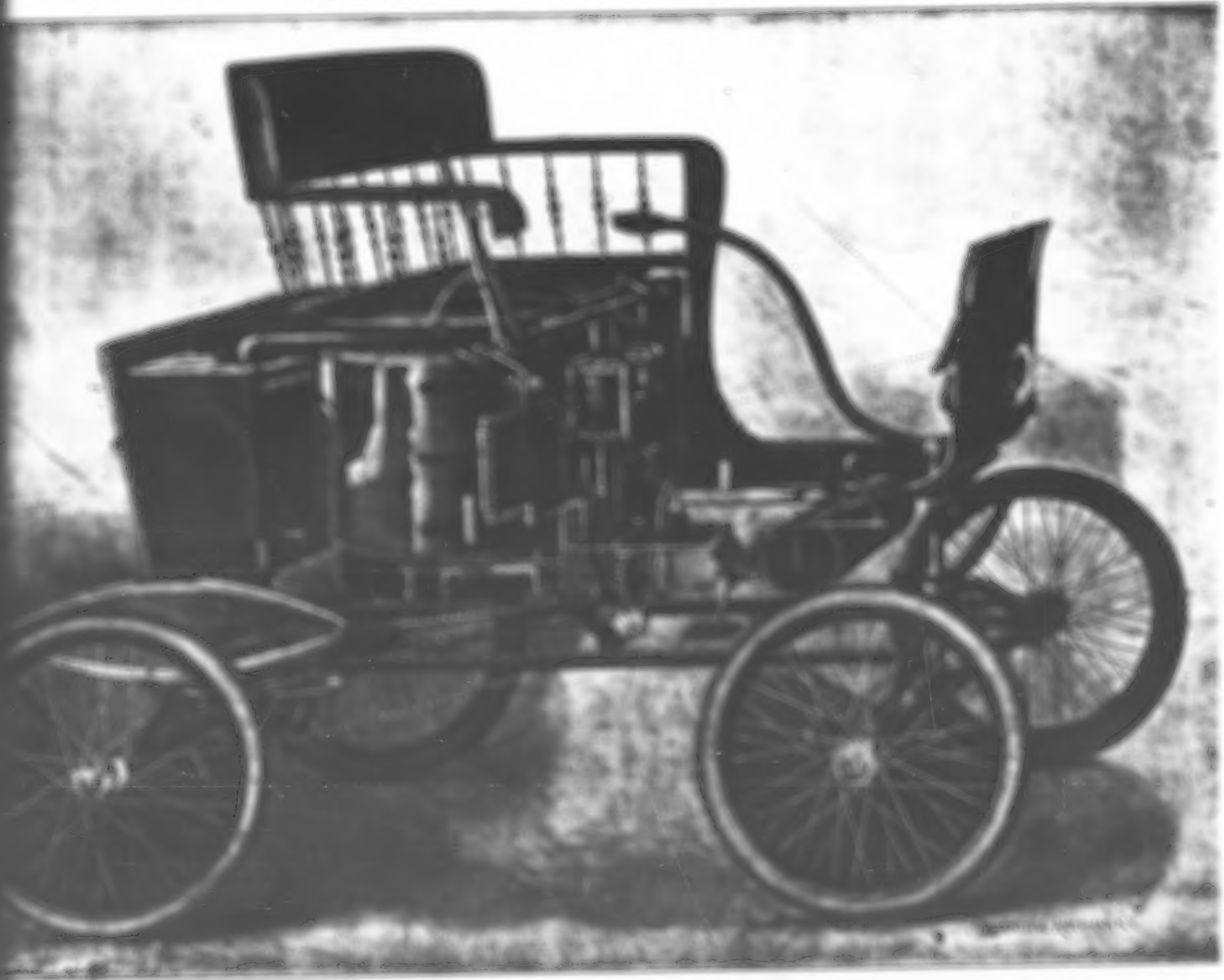


THE [illegible] [illegible] ENGINE



ON THE ROAD

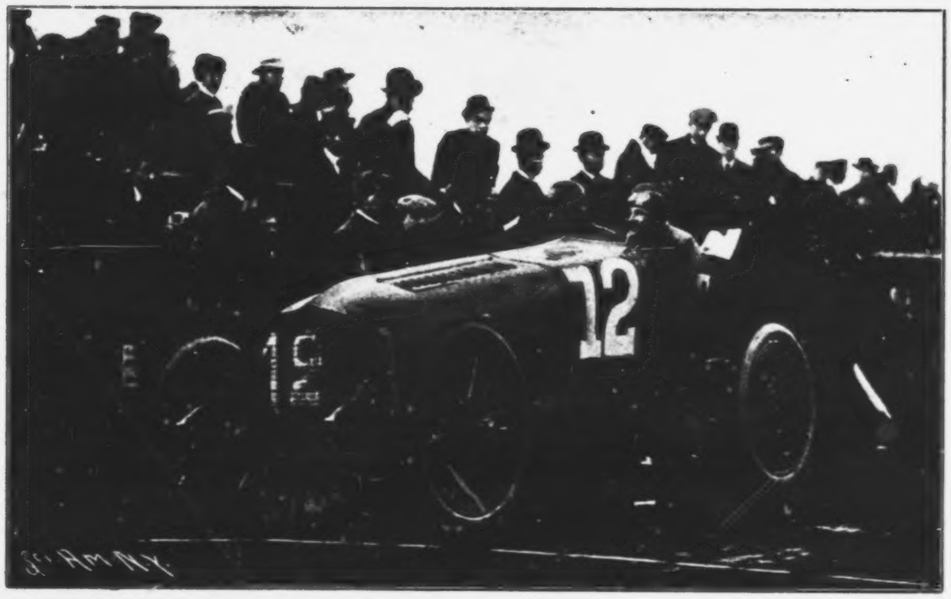
THE [illegible] POWER ENGINE.



The "Locomobile" - 1900

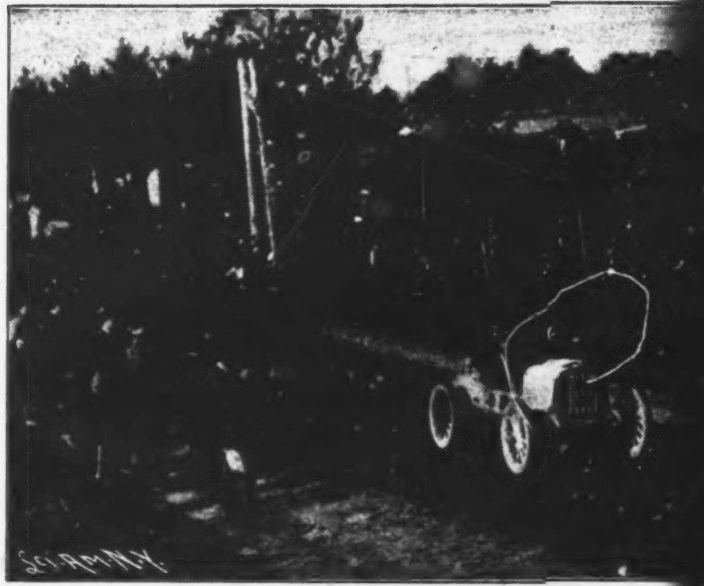
This automobile used a steam engine.

RACERS



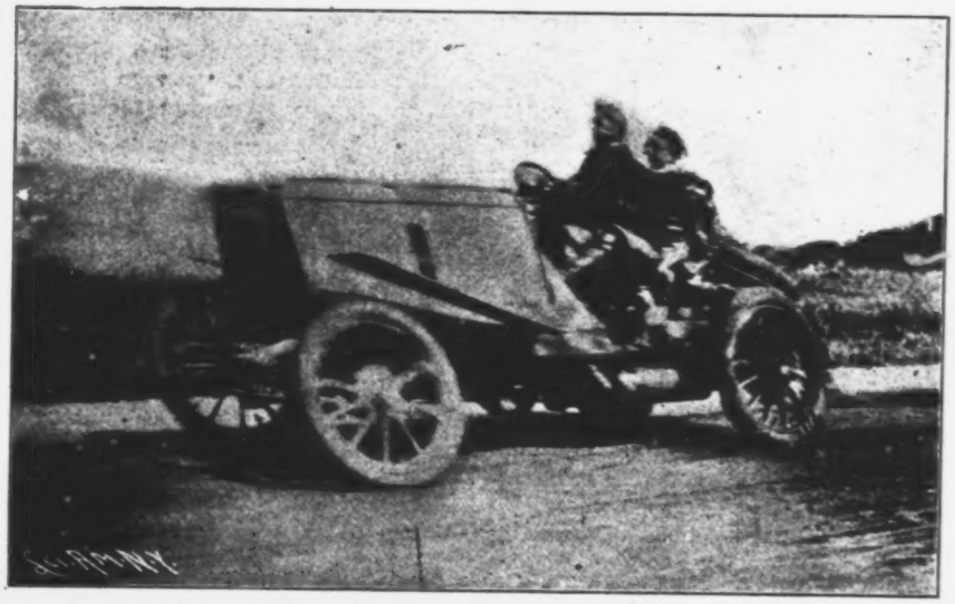
Finished second,

Clement, Jr. Starting in 90-Horse-Power Clement Bayard.



The low-powered car that took third p

Lytle in 24-Horse-Power Pope Tol



Snapshot at 80 miles an hour.

Heath in 90 Horse-Power Panhard.

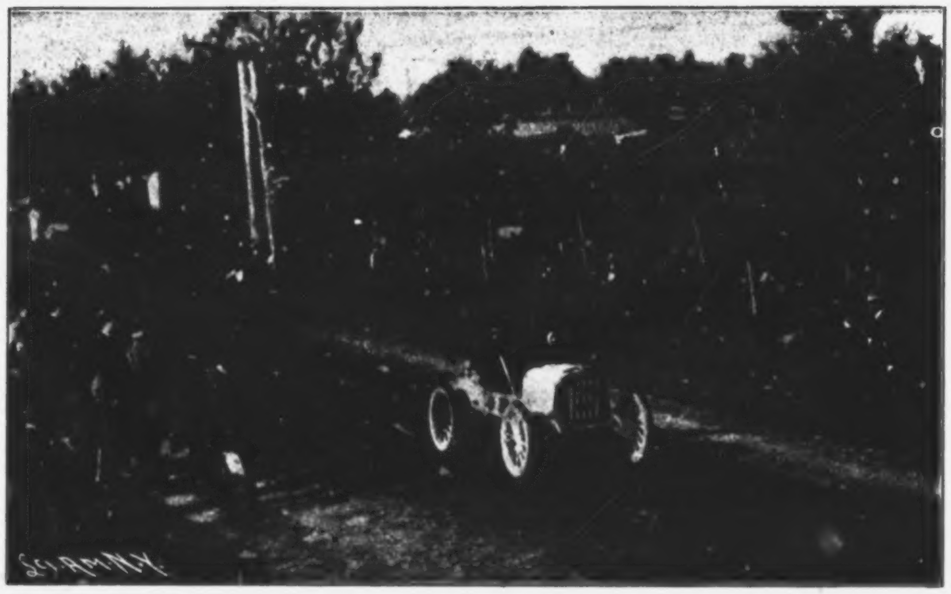
Broke clutch in first round.

Wallace in 90-Horse-Power Fiat. W. K. Vanderbilt, Jr.

CERS

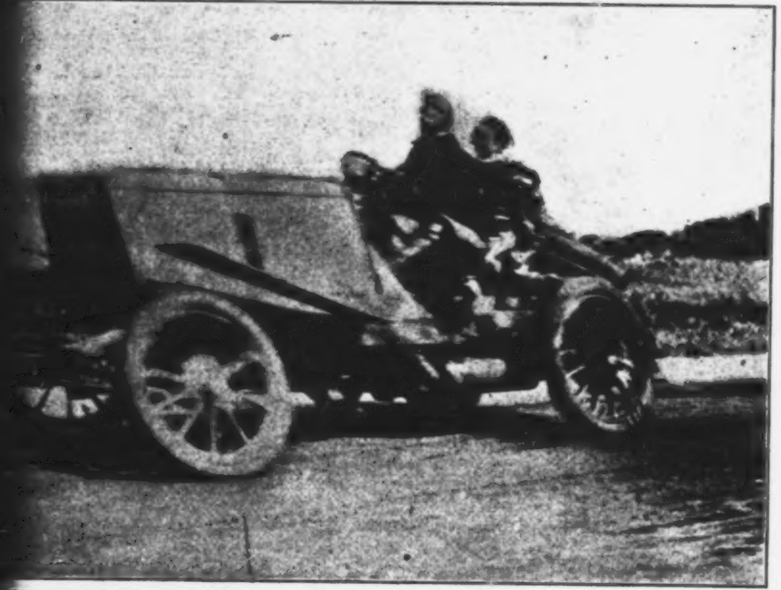
Finished second.

ement, Jr. Starting in 90-Horse-Power Clement Bayard.



The low-powered car that took third place.

Lyttle in 24-Horse-Power Pope Toledo.



Snapshot at 80 miles an hour.

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Wallace in 90-Horse-Power Fiat. W. K. Vanderbilt, Jr., the Donor of Cup.

Finished second.

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The low-powered car that took third place.

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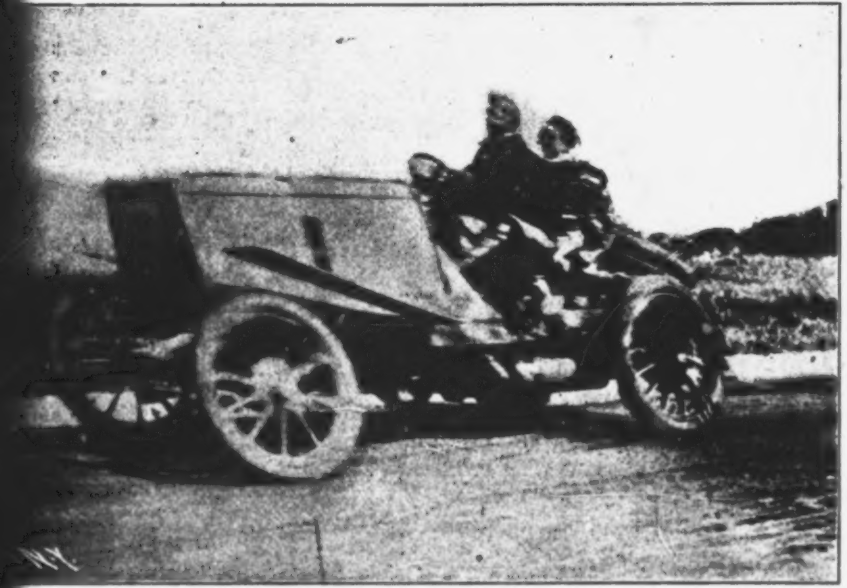

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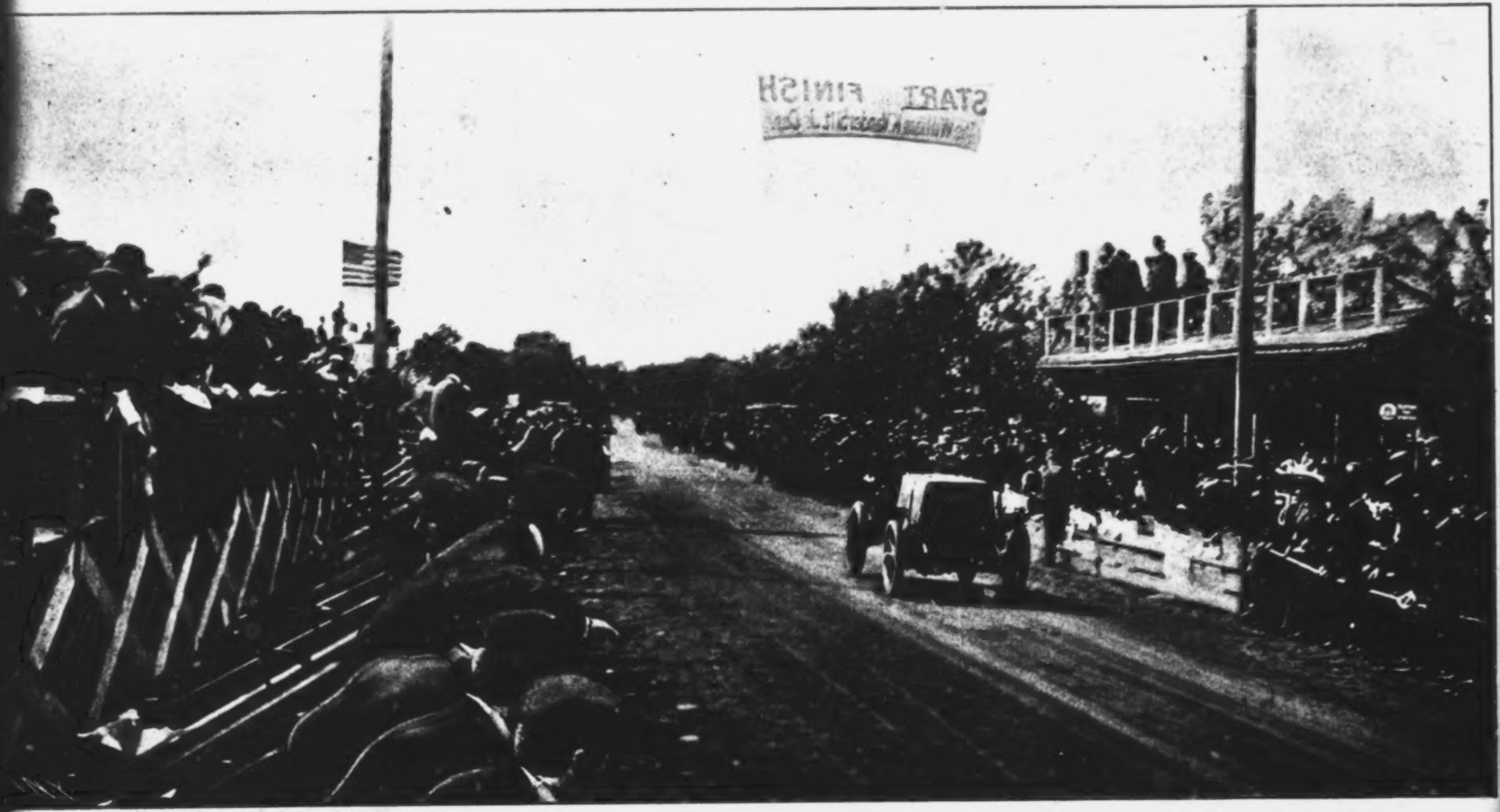


Auto racing in 1904

RACERS

Broke bevel drive shaft in second round.

Start of 90-Horse-Power Renault, Driven by M. Bernin.

Note the drilling out of axle and other parts to lighten machine.

Frank Croker in 75-Horse-Power Simplex.

Overturned; machinist killed and Arents injur

Wreck of Arents' 60-Horse-Power Merc

In fourth place at finish.

24-Horse-Power Packard, Driven by C. Schmidt.

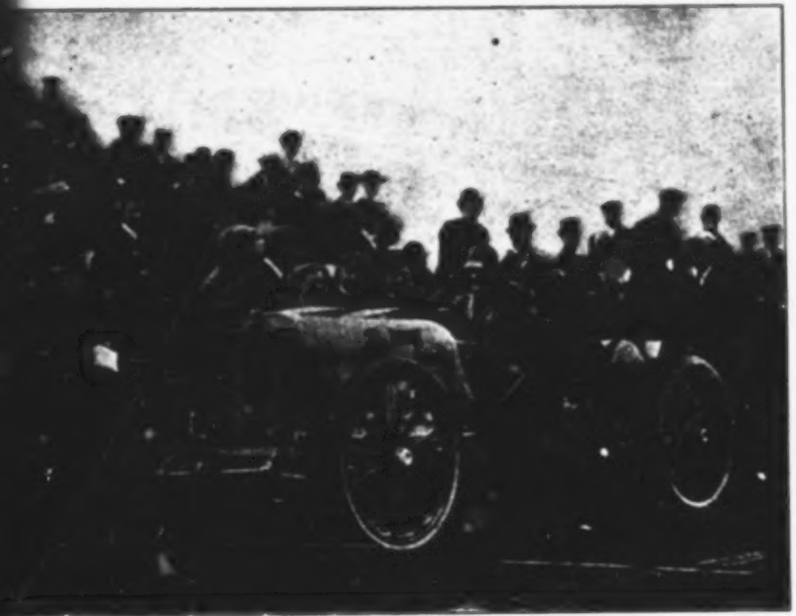
Some of these turns were over 90 degre

Clement Taking One of the Sharp Turns.

CERS

Broke bevel drive shaft in second round.

Start of 90-Horse-Power Renault, Driven by M. Bernin.



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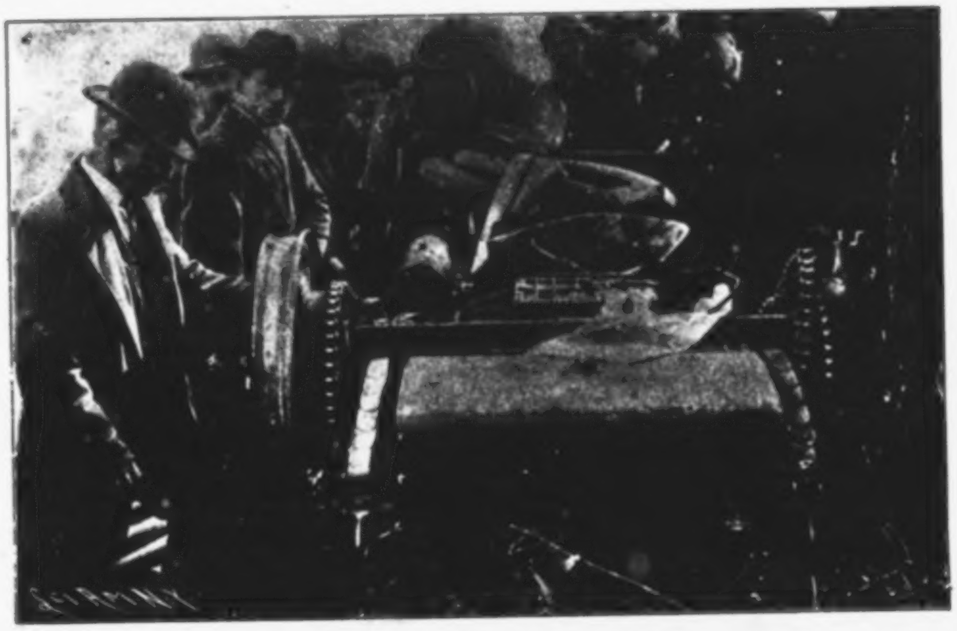
Frank Croker in 75-Horse-Power Simplex.



Overturned; machinist killed and Arents injured.

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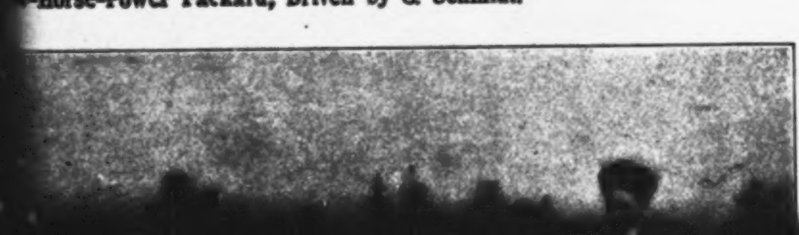
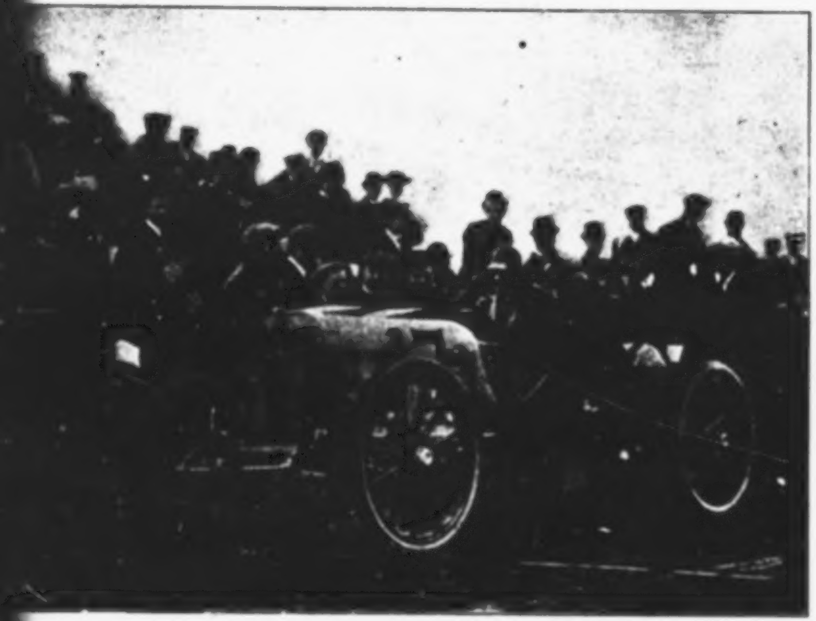


Broke bevel drive shaft in second round.

Start of 90-Horse-Power Renault, Driven by M. Bernin.



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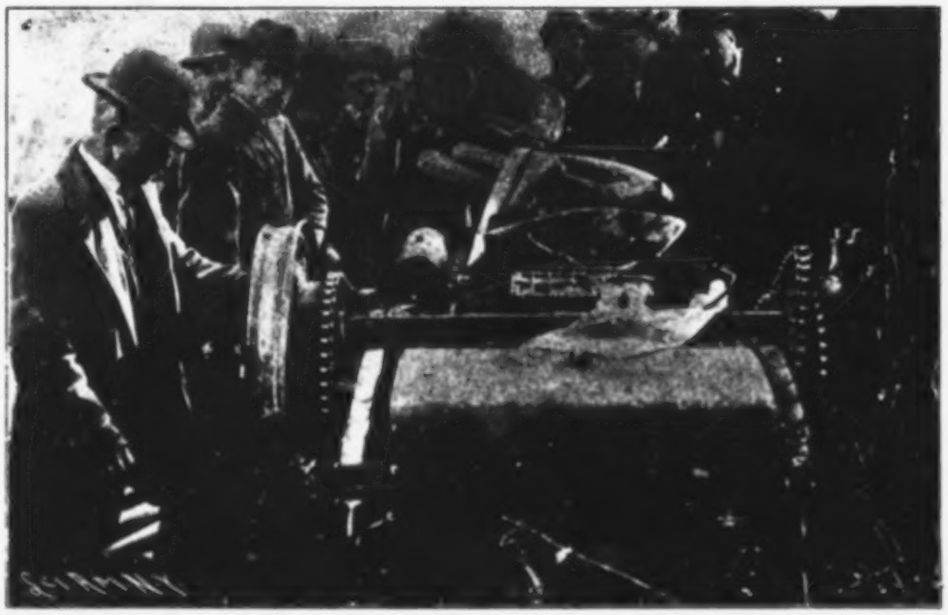
Frank Croker in 75-Horse-Power Simplex.



Overturned; machinist killed and Arents injured.

Wreck of Arents' 60-Horse-Power Mercedes.

In fourth place at finish.

4-Horse-Power Packard, Driven by C. Schmidt.

Some of these turns were over 90 degrees.

Clement Taking One of the Sharp Turns.

The youngest of the contestants, 21 years old.

Before the start.

The Vanderbilt International Cup Contest - 1904

RACER

CER

A racing car on a curve

It was run by steam.

It had 40 horsepower.

See it skid.

RACERS

The Finale of the Race for the Renault Memorial Plate.

CERS

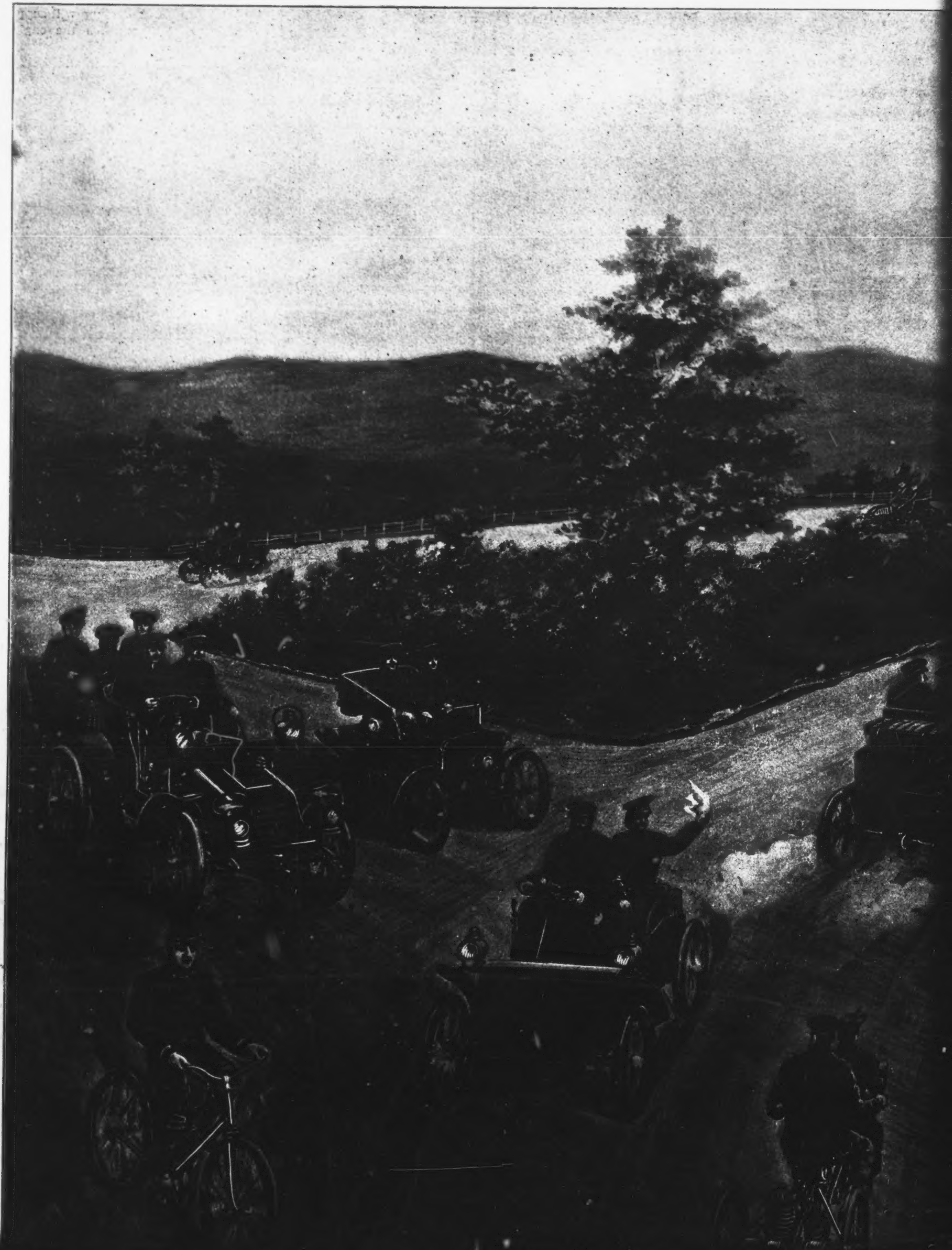
The Finale of the Race for the Renault Memorial Plate.

The Finale of the Race for the Renault Memorial Plate.

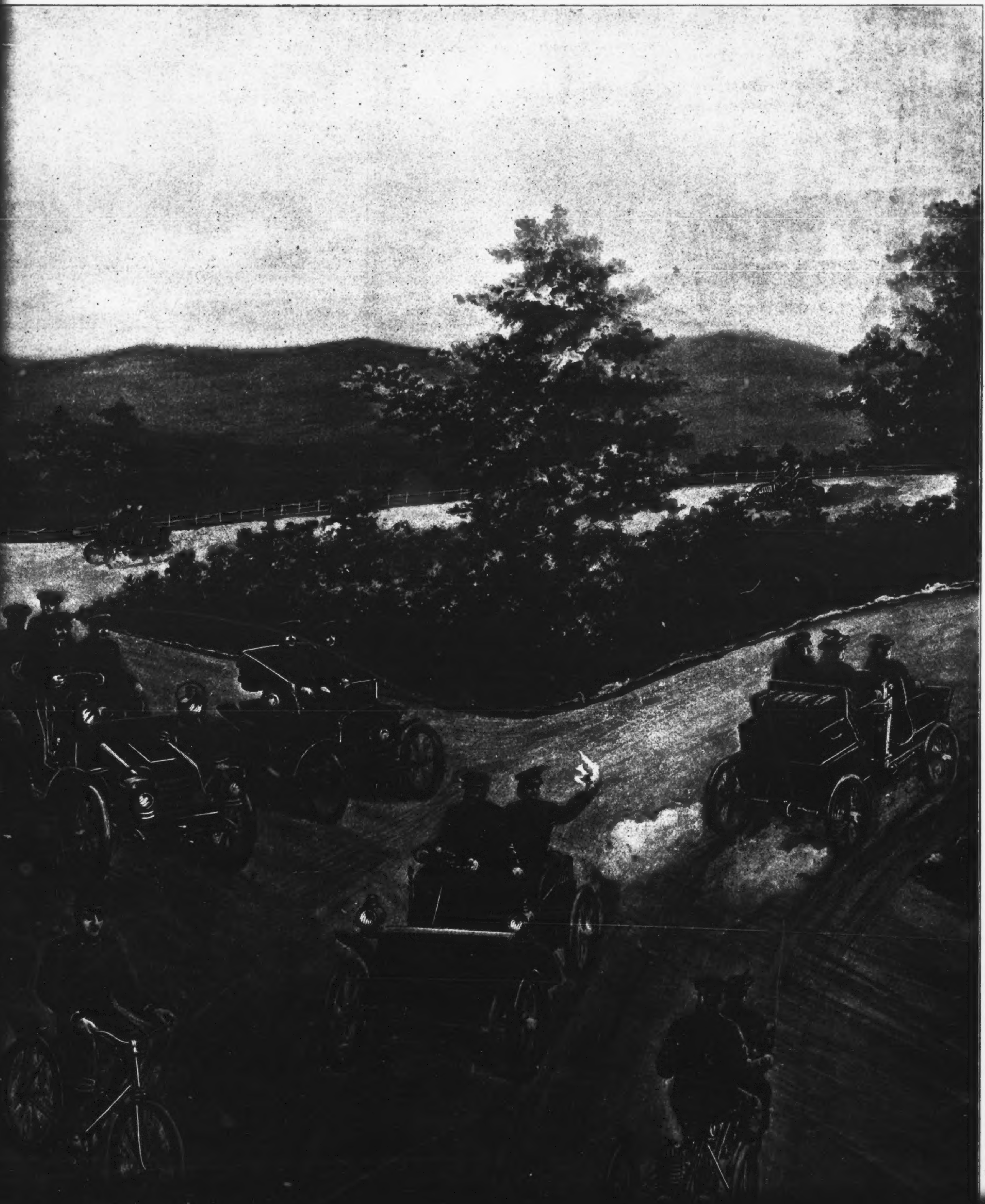
Procession of Cars Around the Track.

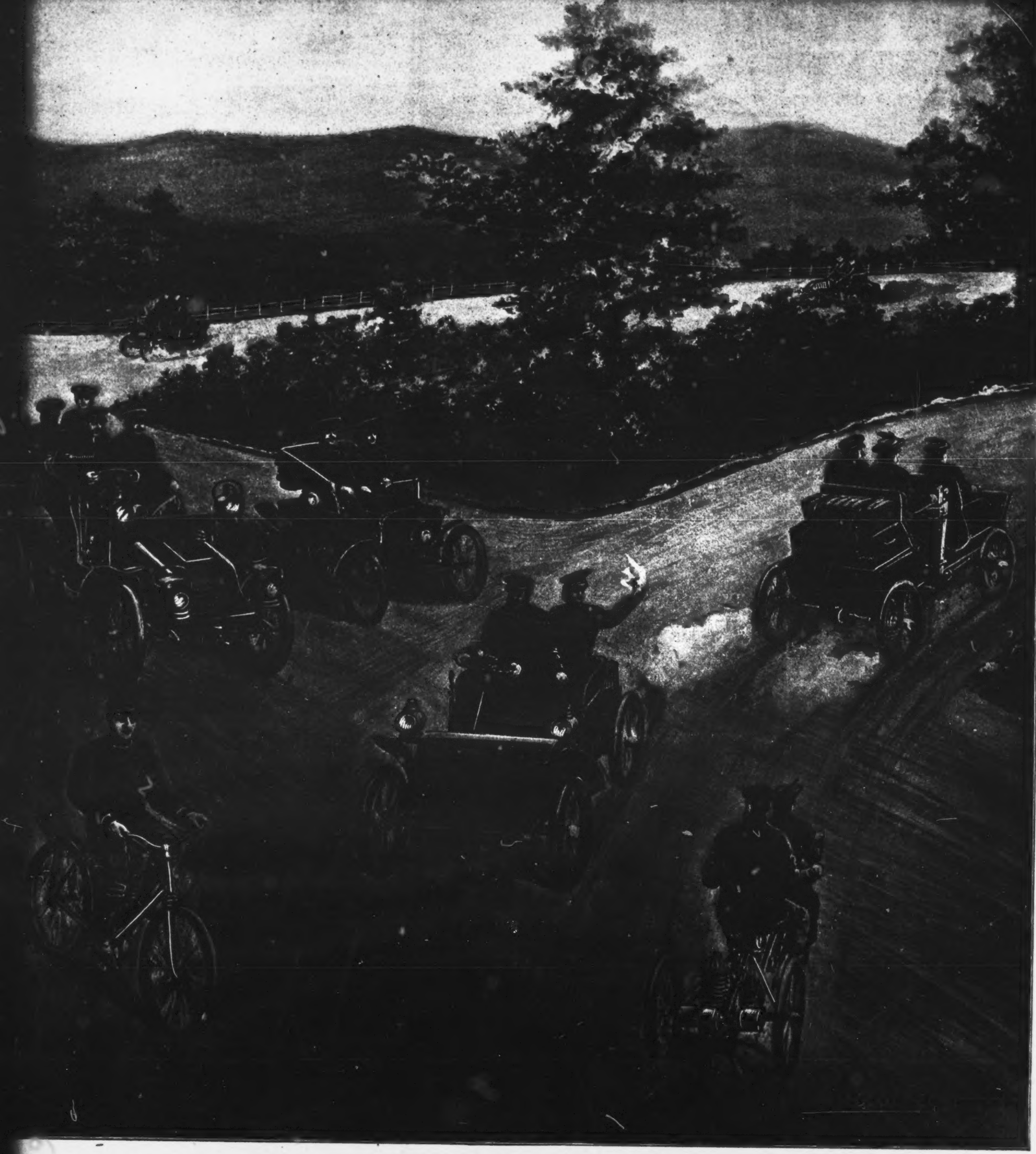
Banked turns made speeds of 100 m.p.h. possible. This racer even had a windshield.

CARS



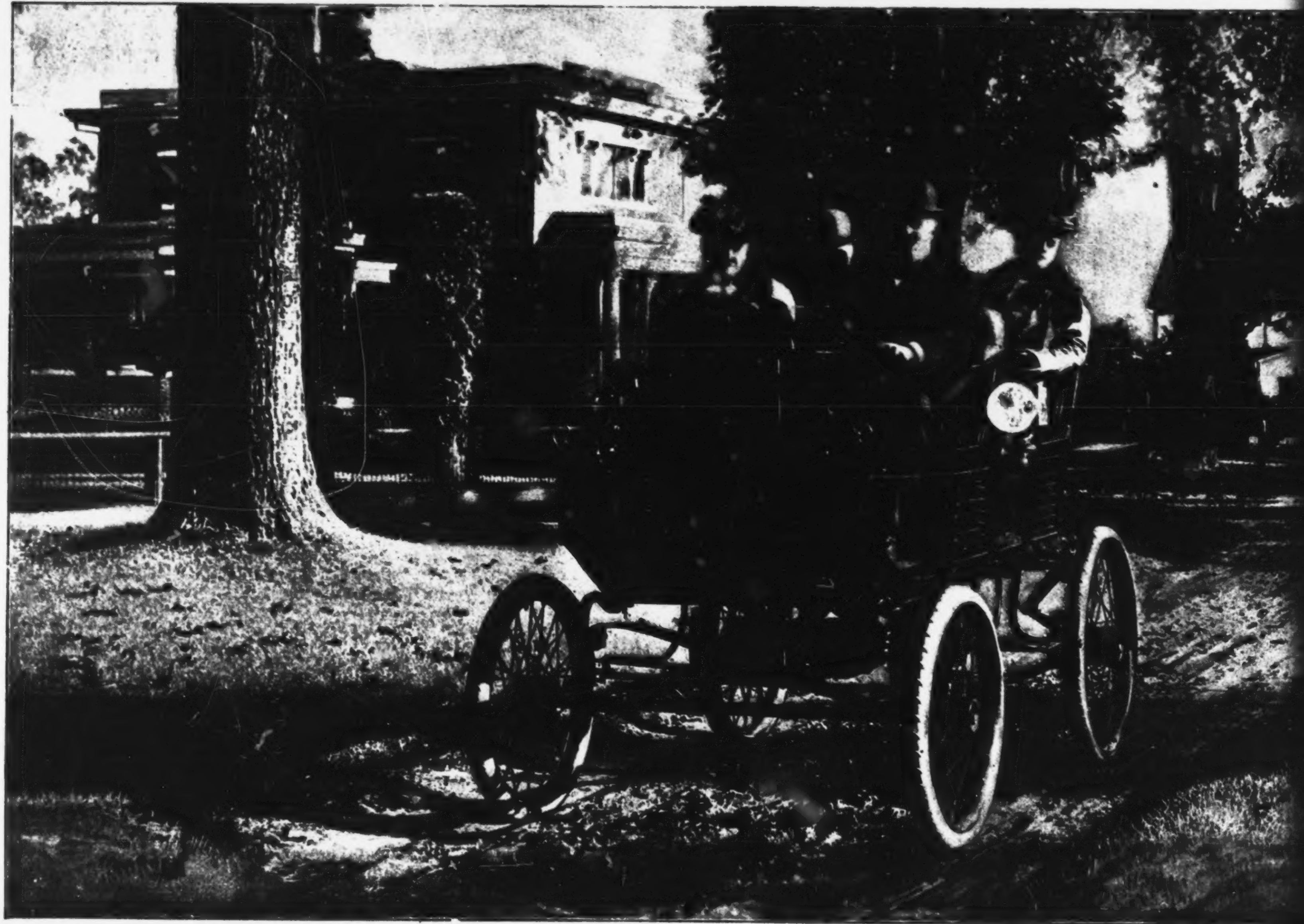
RS



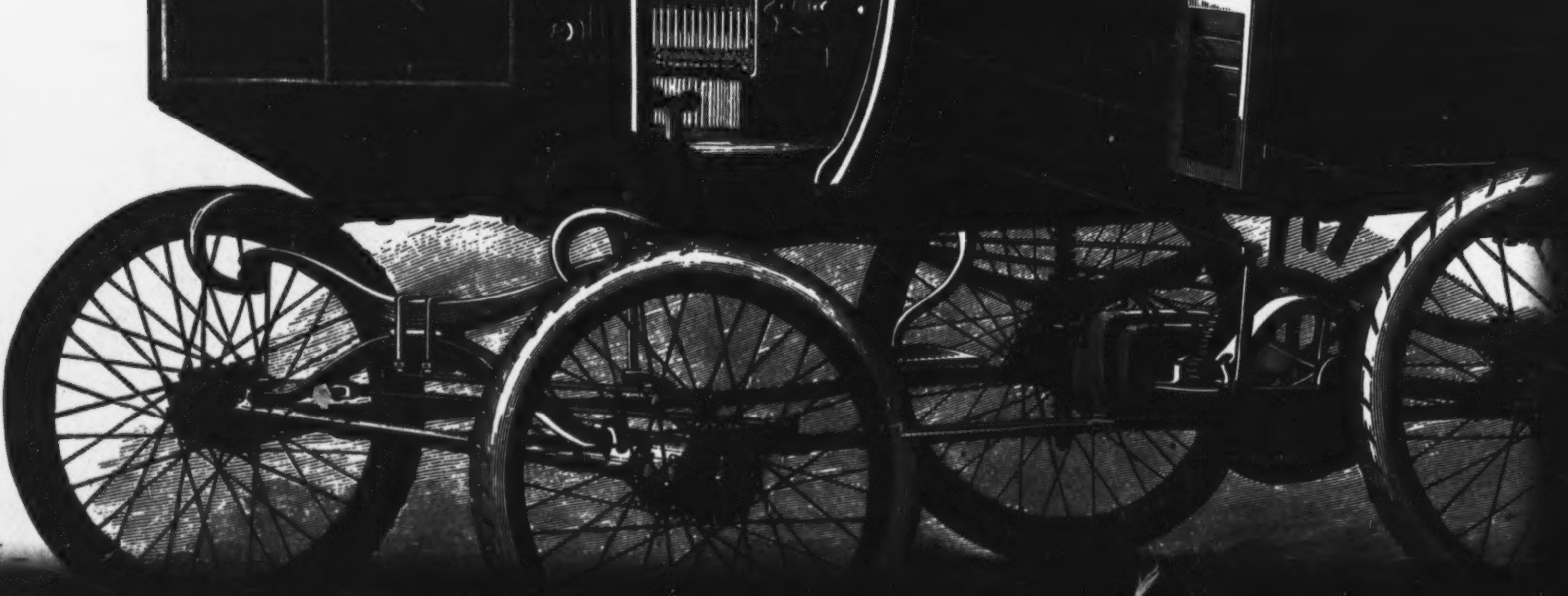


Some automobiles and motor bicycles in 1901

CARS



ELECTRIC SURREY IN OPERATION.



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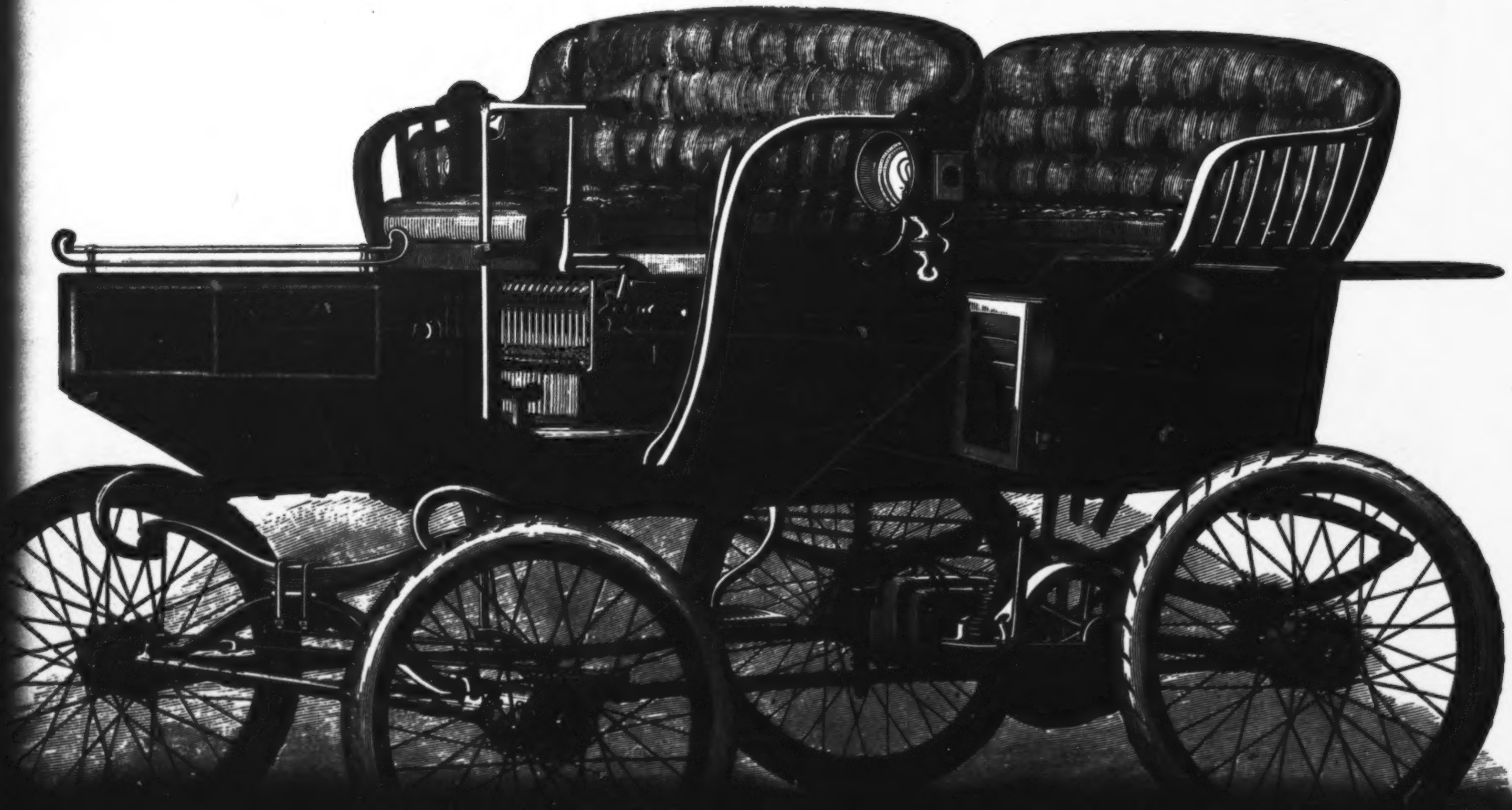
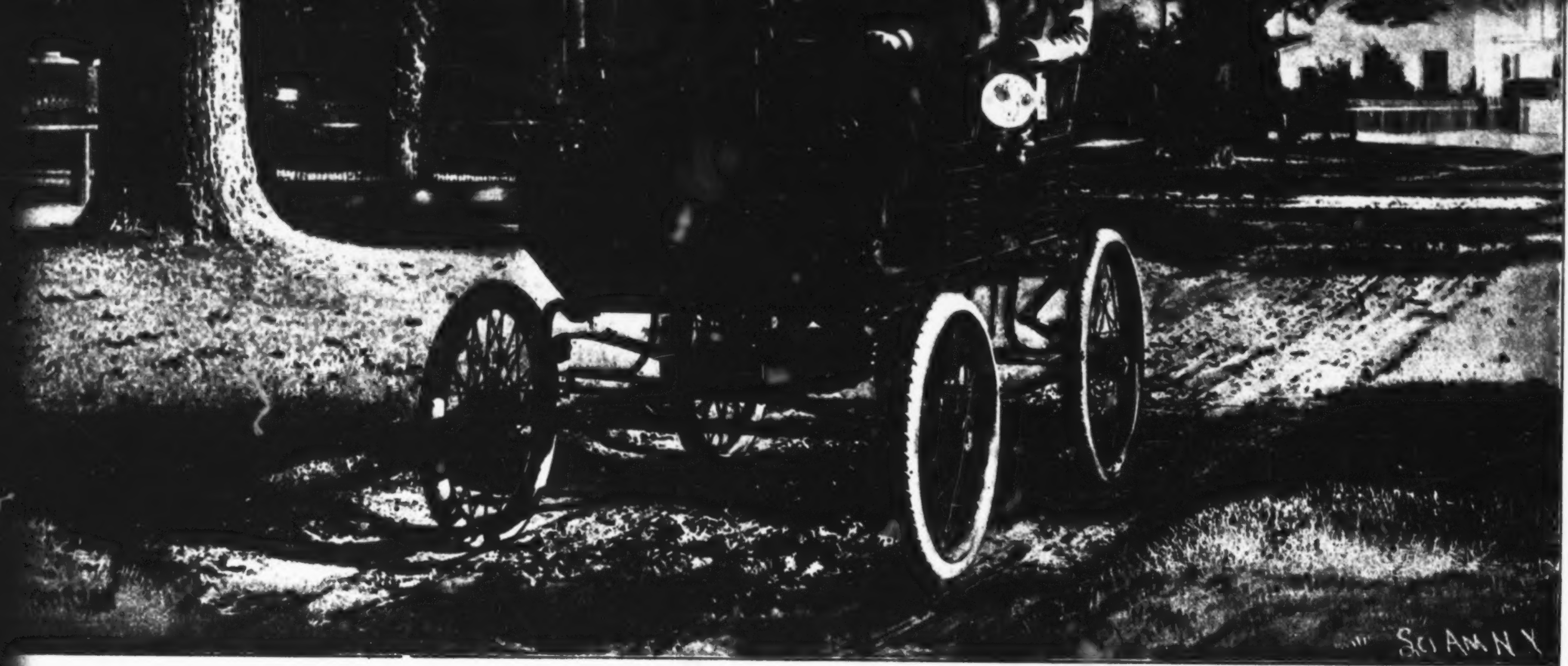
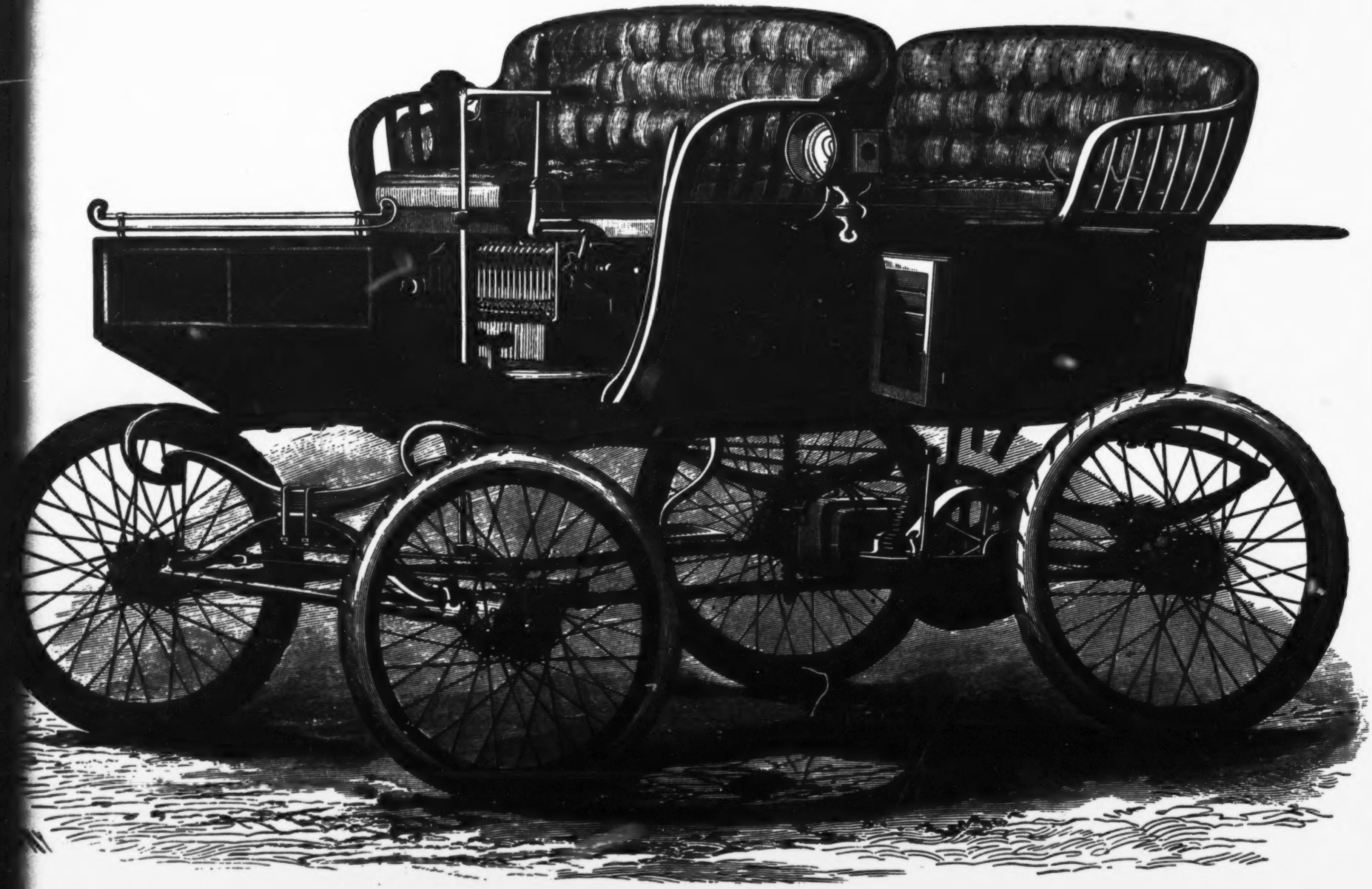
ELECTRIC SURREY IN OPERATION.





ELECTRIC SURREY IN OPERATION.



Some cars were electric in 1899.
They ran by batteries.

CARS

The New Reo 16-Horse-Power Side Entrance Tonneau.

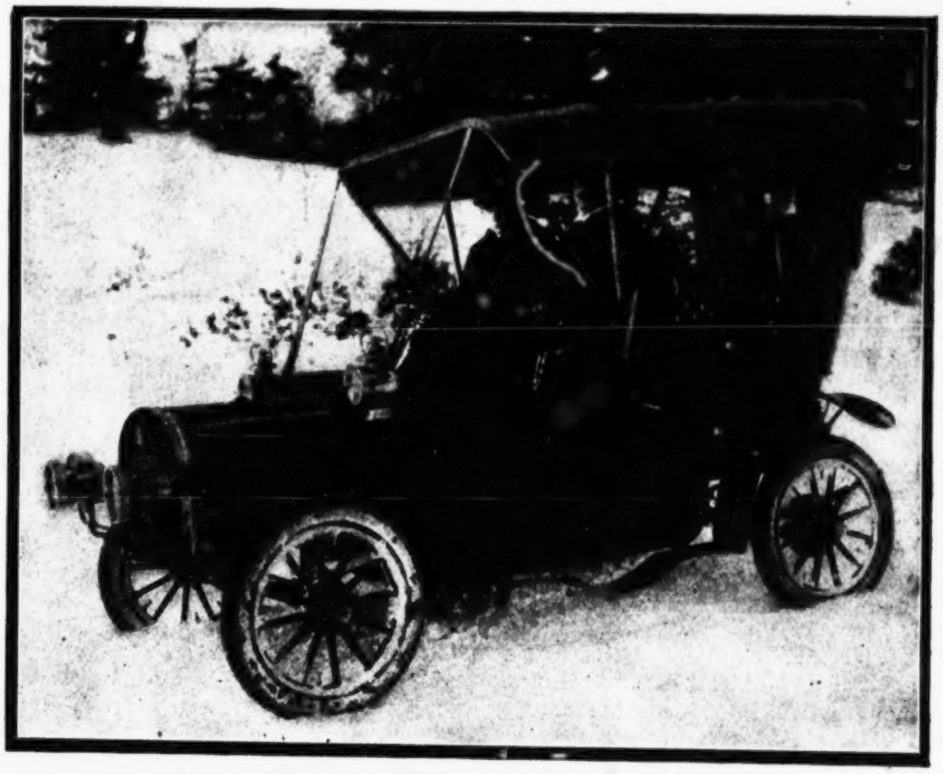
The Rambler 20-Horse-Power Tonneau with Ca

The 30-Horse-Power Franklin Four-Cylinder Air-Cooled Car.

The 15-Horse-Power White Steam Tourin

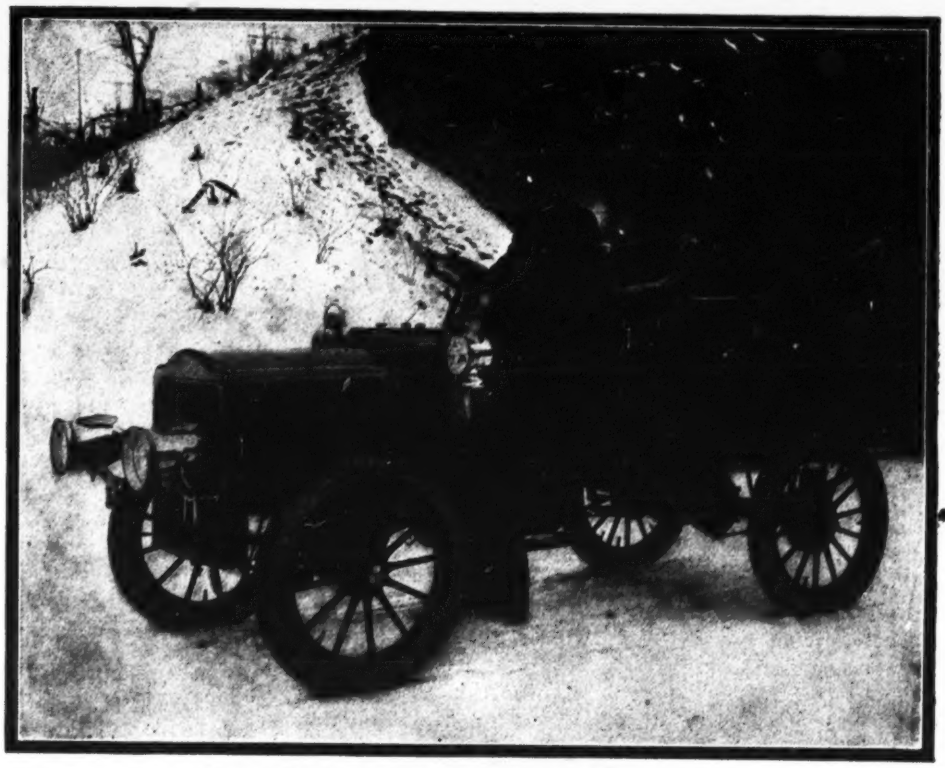
RS

e New Reo 16-Horse-Power Side Entrance Tonneau.



The Rambler 20-Horse-Power Tonneau with Cape Cart Top.

-Horse-Power Franklin Four-Cylinder Air-Cooled Car.



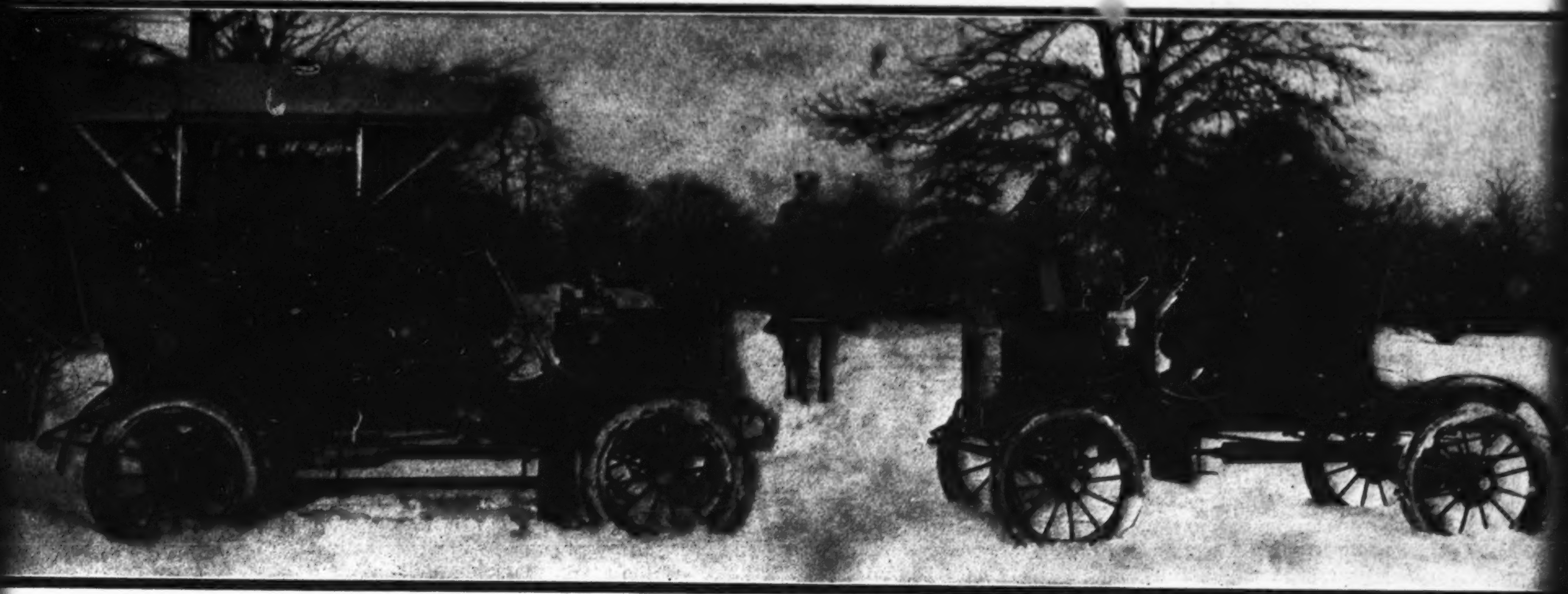
The 15-Horse-Power White Steam Touring Car.

The New Reo 16-Horse-Power Side Entrance Tonneau.

The Rambler 20-Horse-Power Tonneau with Cape Cart Top.

The 30-Horse-Power Franklin Four-Cylinder Air-Cooled Car.

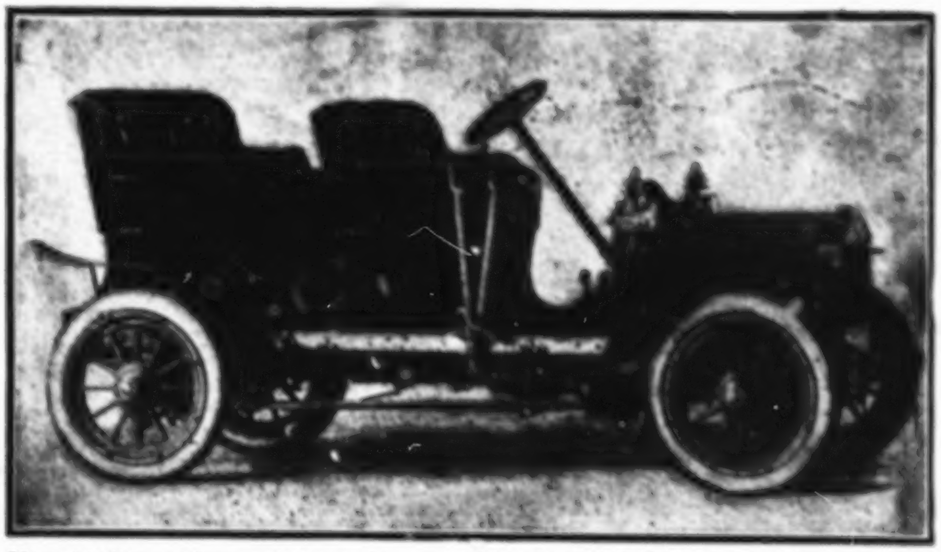
The 15-Horse-Power White Steam Touring Car.



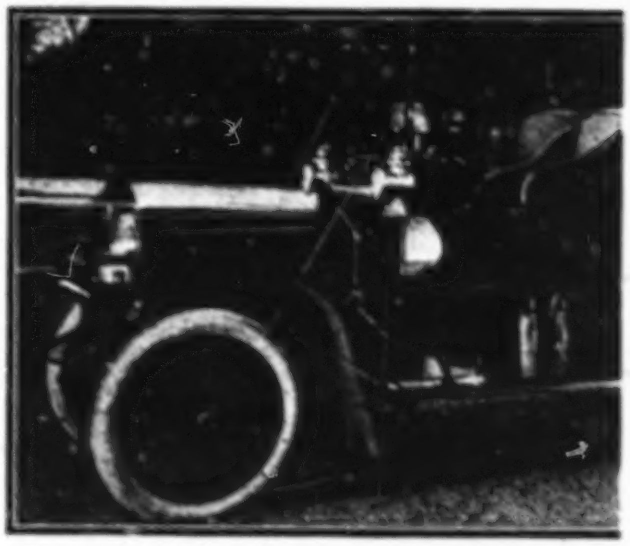
A Maxwell 16-Horse-Power Double Opposed-Cylinder Touring Car Disputing the Right of Way with a Runabout of the Same Type in Central Park.

SOME LEADING 1905 CARS AS THEY APPEAR IN MID-WINTER.

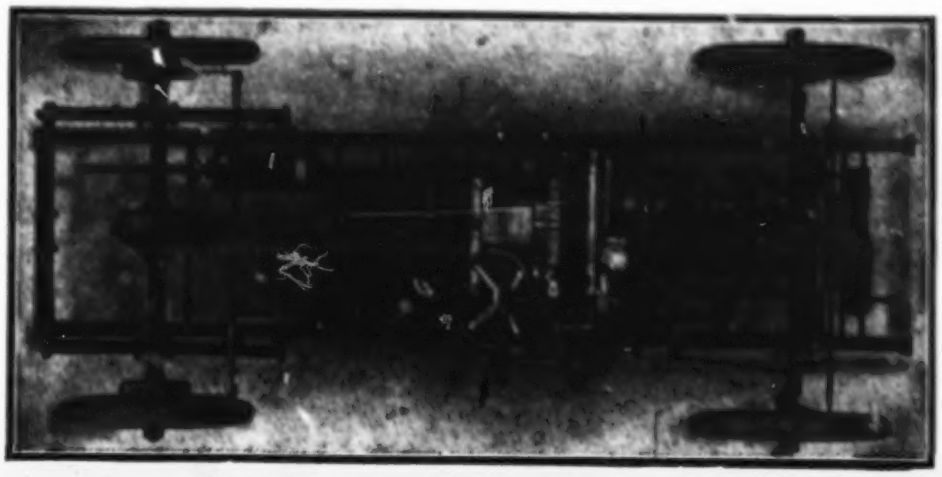
CARS



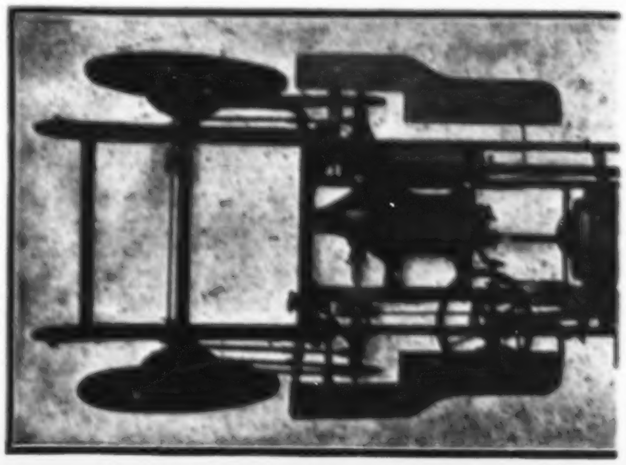
New 20-Horse-Power Autocar Tonneau Fitted with 4-Cylinder Vertical Engine and Bevel Gear Drive.



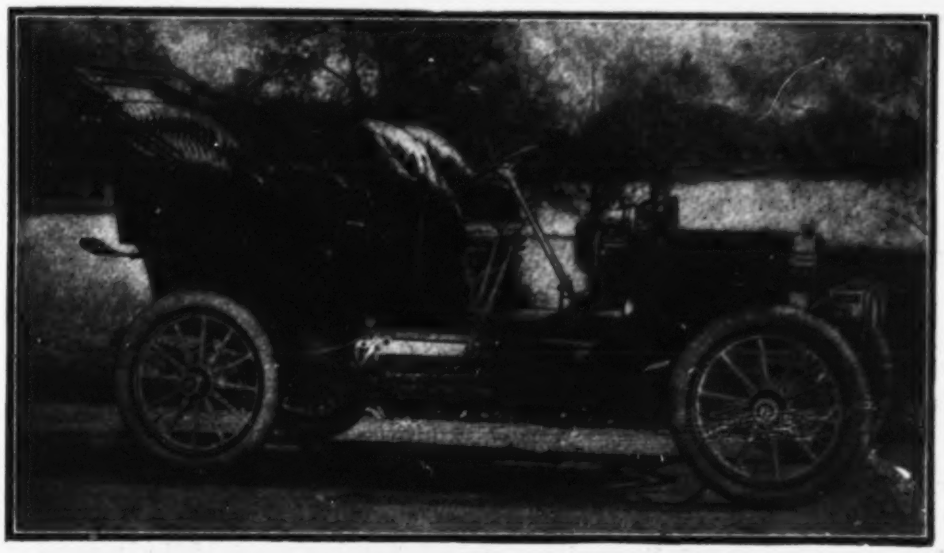
Thomas 4-Cylinder 40-Horse-Power Side Entrance T
Drive.



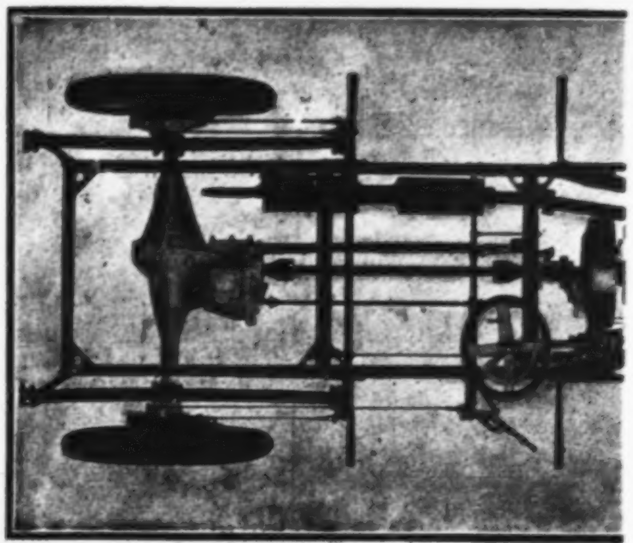
Chassis of Autocar, Showing Bevel Gear Drive.



Chassis of Thomas Car, Showing Chain Drive

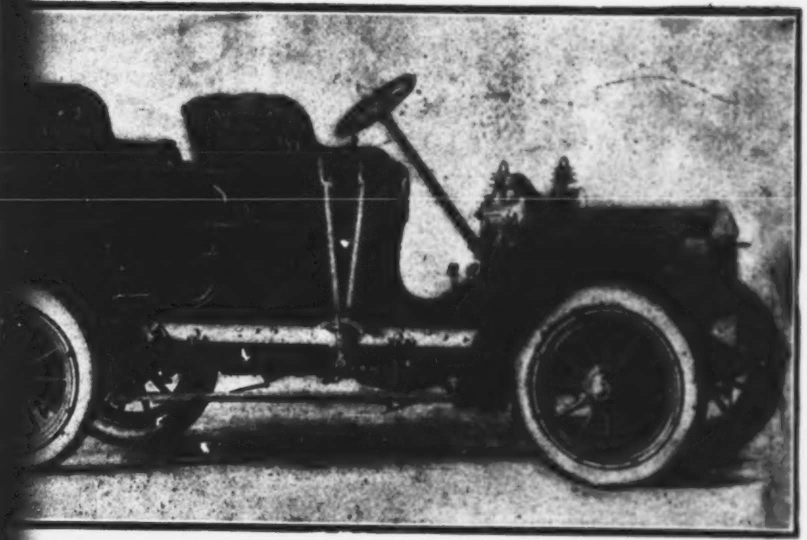


The Packard 28-Horse-Power Side Entrance Tonneau.

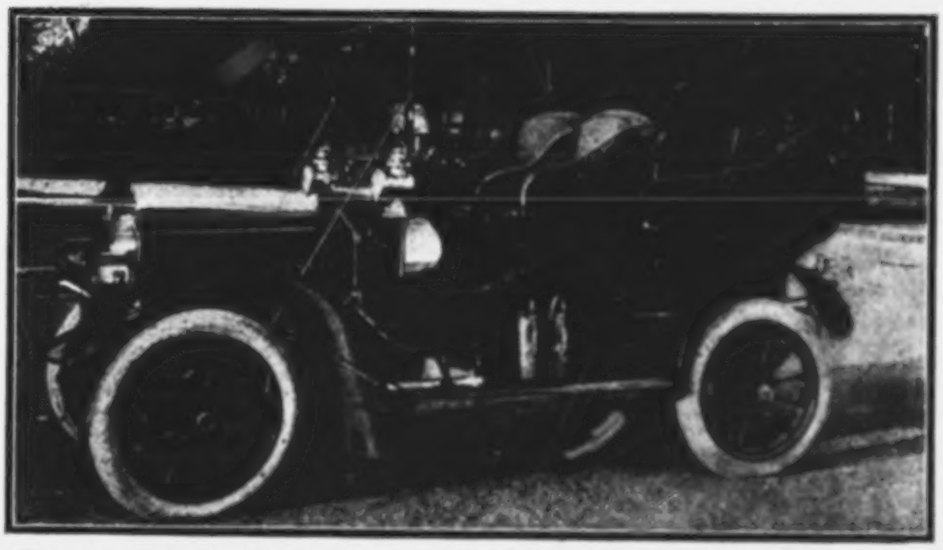


Chassis of Packard Car, Showing Transmissio

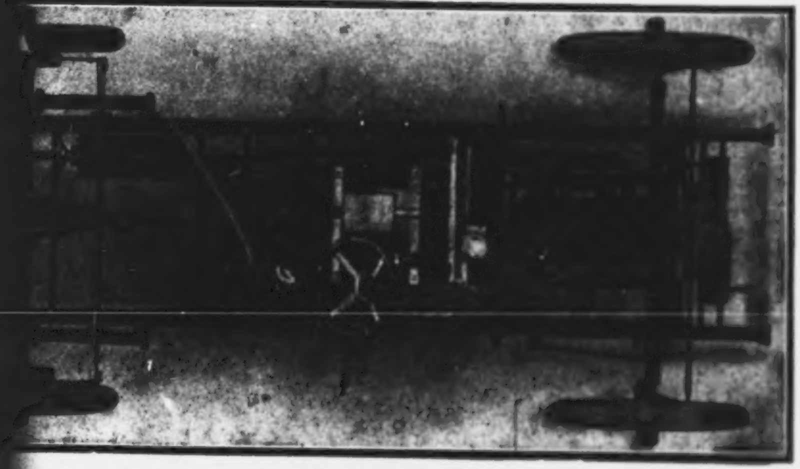
RS



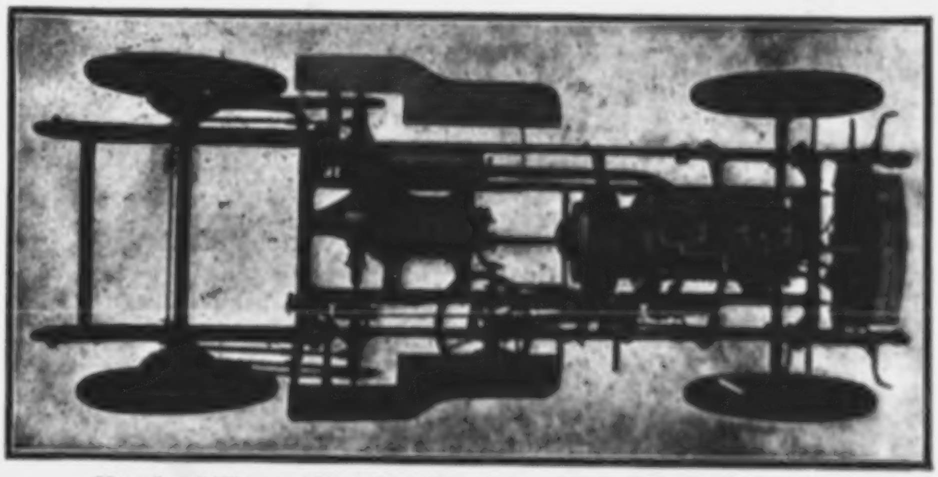
-Power Autocar Tonneau Fitted with 4-Cylinder Vertical Engine and Bevel Gear Drive.



Thomas 4-Cylinder 40-Horse-Power Side Entrance Tonneau Fitted with Chain Drive.

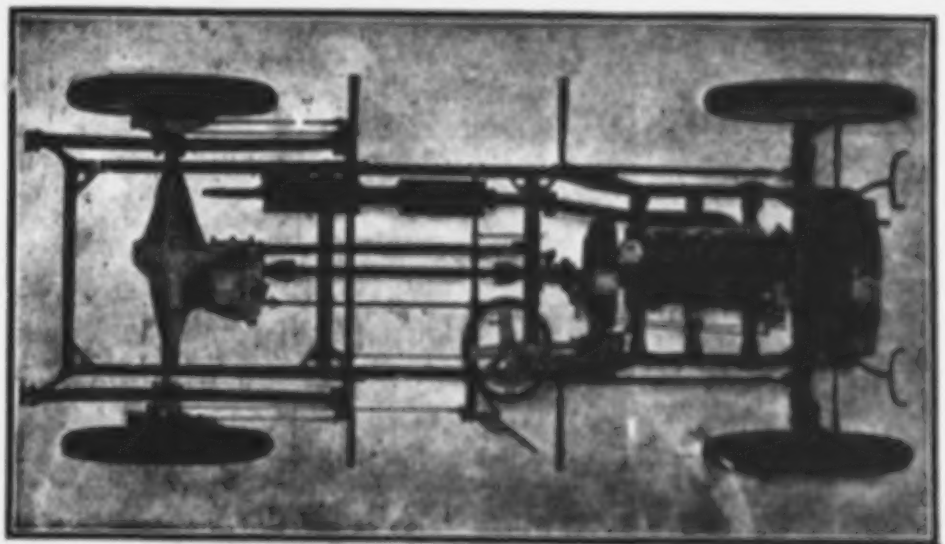


Chassis of Autocar, Showing Bevel Gear Drive.



Chassis of Thomas Car, Showing Chain Drive from Countershaft.

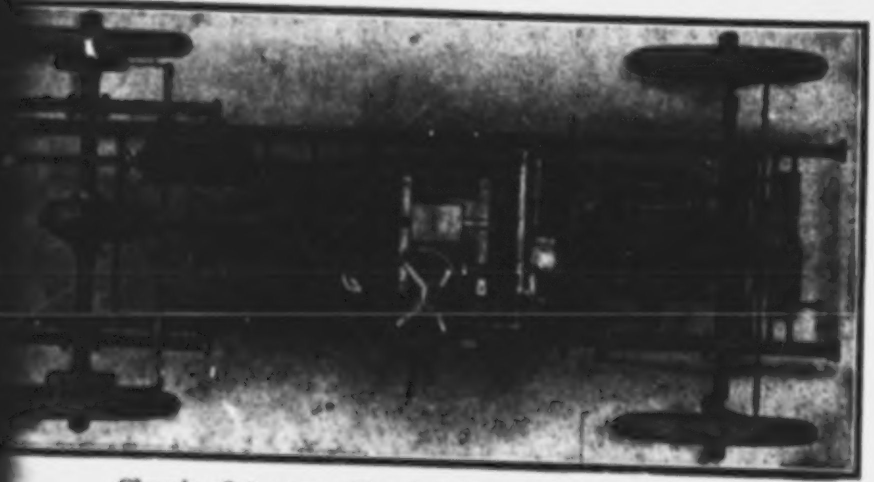
The Packard 28-Horse-Power Side Entrance Tonneau.



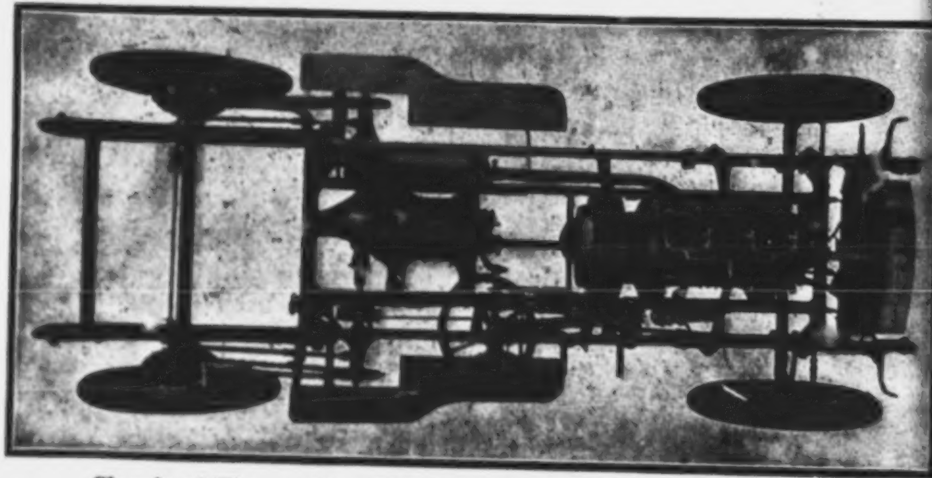
Chassis of Packard Car, Showing Transmission at the Rear Axle.

0-Horse-Power Autocar Tonneau Fitted with 4-Cylinder Vertical Engine and Bevel Gear Drive.

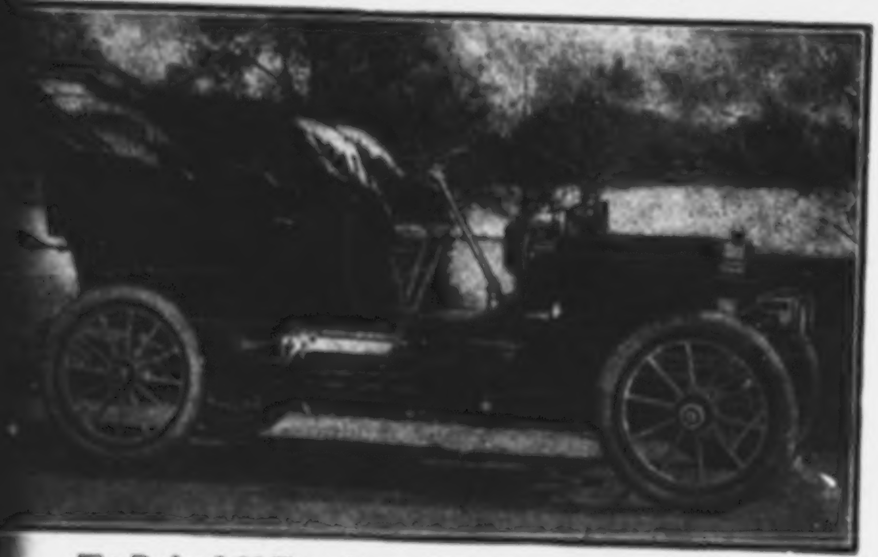
Thomas 4-Cylinder 40-Horse-Power Side Entrance Tonneau Fitted with Chain Drive.



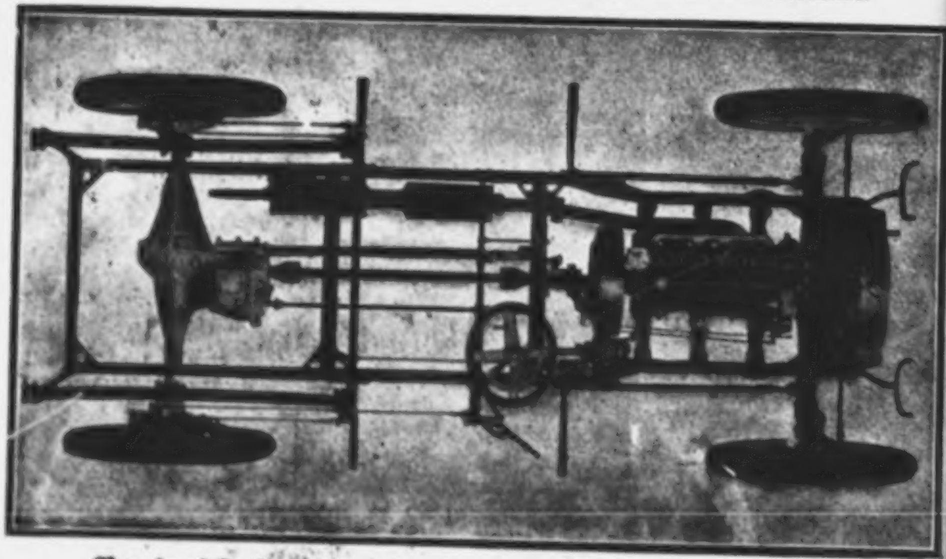
Chassis of Autocar, Showing Bevel Gear Drive.



Chassis of Thomas Car, Showing Chain Drive from Countershaft.



The Packard 28-Horse-Power Side Entrance Tonneau.



Chassis of Packard Car, Showing Transmission at the Rear Axle.

tevens-Duryea 20-Horse-Power Side Entrance Tonneau Fitted with 4-Cylinder Vertical Engine.

The Winton 24-Horse-Power Side Entrance Tonneau with 4-Cylinder Vertical Engine.

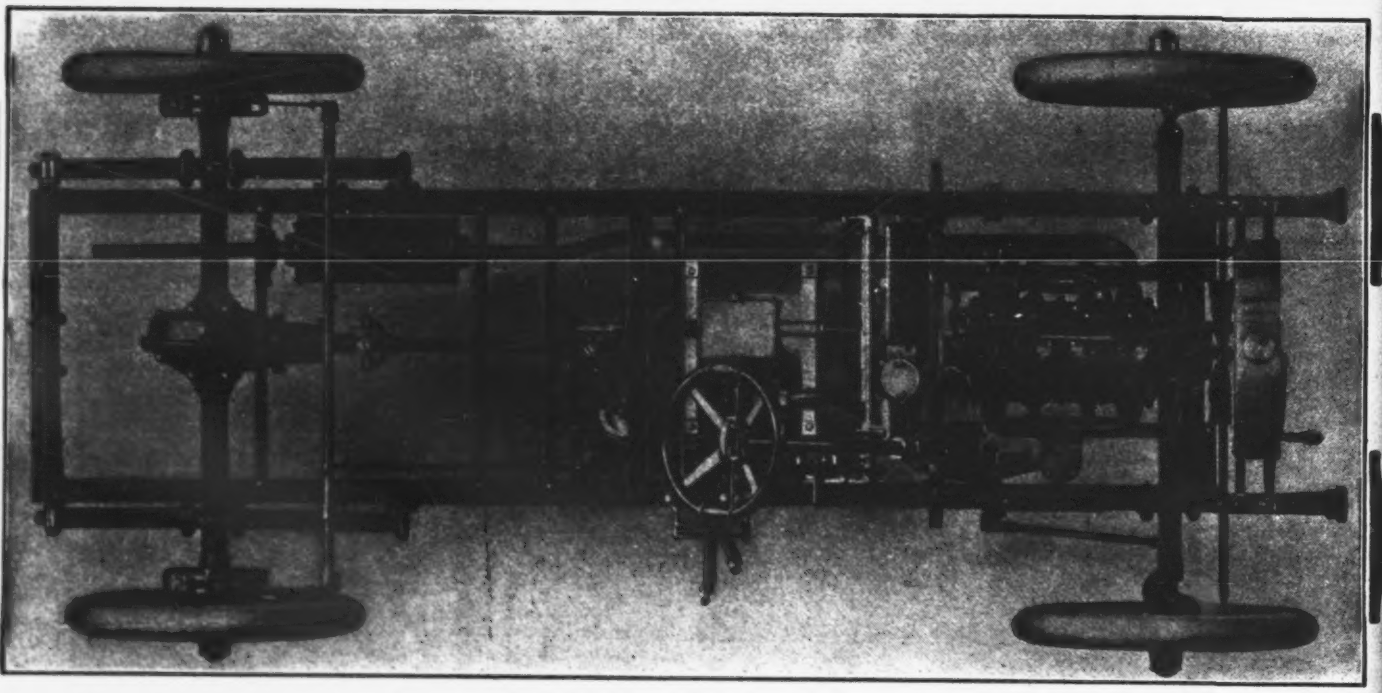
American Touring Cars - 1905

ADVERTISEMENT

The Autoca

THE CAR OF SIMPLICITY

CHASSIS OF TYPE XI



Type
XI
Four
Cylinder
16-20 H. P.

Do
Si
Entr
Ton
$2,

The Autocar stands as a triumph in automobile building. Its construction combines with greatest efficiency and durability a simplicity that is the wonder of all who see it. This is a feature that commends itself alike to the novice and the expert. It means minimum liability of derangement, greatest ease and safety of operation, and lowest running expense. Each type of Autocar represents the nearest to perfection in its class. Every Autocar is built upon lines proven correct by [illegible] built of absolutely the best material, and

service, for durability and freedom from annoyan
Autocar is unsurpassed.

The new car, Type XI, illustrated above, wi
chassis, shows a number of very valuable im
ments, accomplishing increased ease of control,
and simplicity.

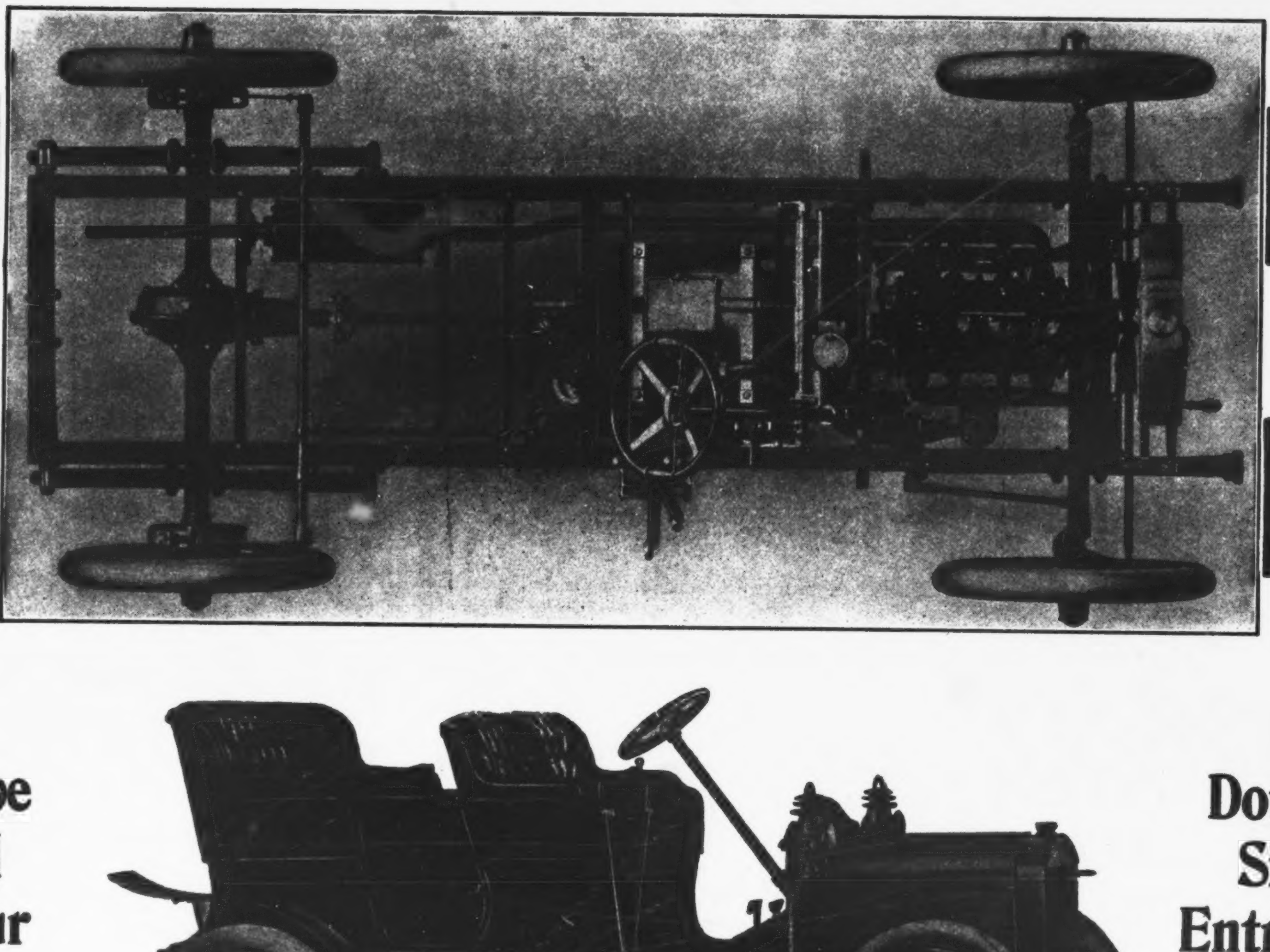
Type VIII, Four-passenger car, and Type X,
bout, are the cars which have made the present
tion of the Autocar, to which the new Type X
surely add.

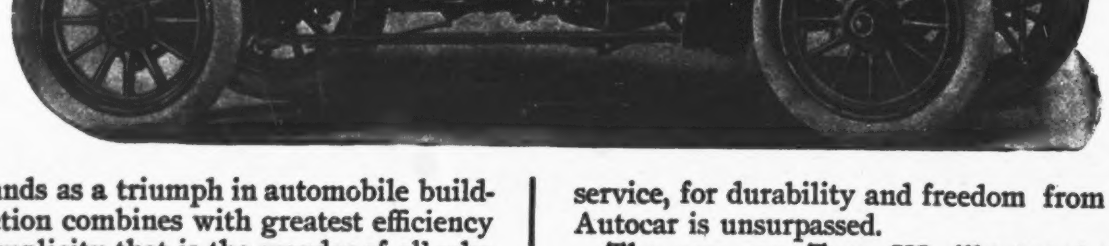
VERTISEMENT

The Autocar

THE CAR OF SIMPLICITY

CHASSIS OF TYPE XI





Type XI Four ylinder 20 H. P.

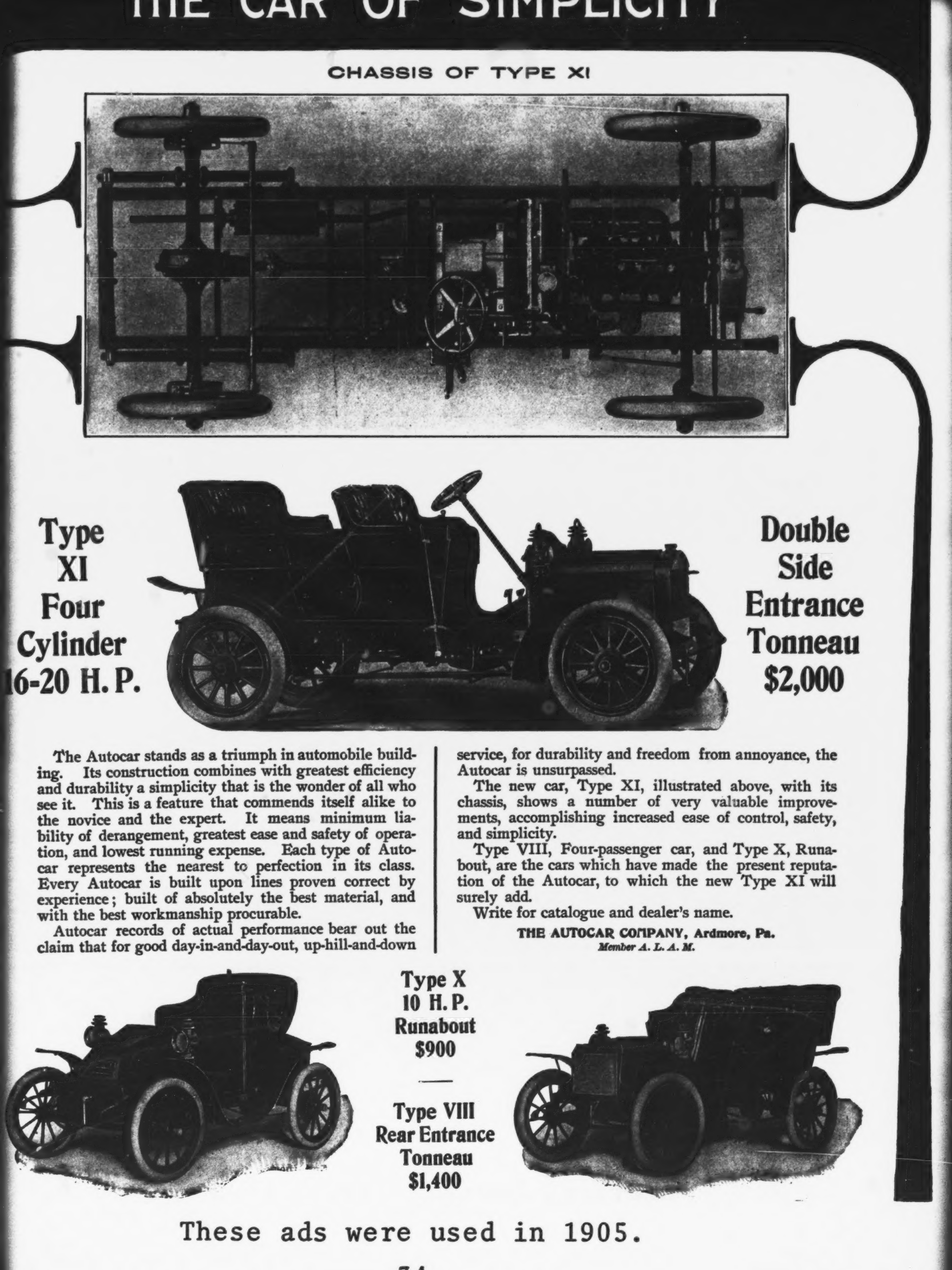
Double Side Entrance Tonneau $2,000

The Autocar stands as a triumph in automobile building. Its construction combines with greatest efficiency and durability a simplicity that is the wonder of all who see it. This is a feature that commends itself alike to the novice and the expert. It means minimum liability of derangement, greatest ease and safety of operation, and lowest running expense. Each type of Autocar represents the nearest to perfection in its class. very Autocar is built upon lines proven correct by

service, for durability and freedom from annoyance, the Autocar is unsurpassed.

The new car, Type XI, illustrated above, with its chassis, shows a number of very valuable improvements, accomplishing increased ease of control, safety, and simplicity.

Type VIII, Four-passenger car, and Type X, Runabout, are the cars which have made the present reputation of the Autocar, to which the new Type XI will



THE CAR OF SIMPLICITY

CHASSIS OF TYPE XI

Type XI Four Cylinder 16-20 H. P.

Double Side Entrance Tonneau $2,000

The Autocar stands as a triumph in automobile building. Its construction combines with greatest efficiency and durability a simplicity that is the wonder of all who see it. This is a feature that commends itself alike to the novice and the expert. It means minimum liability of derangement, greatest ease and safety of operation, and lowest running expense. Each type of Autocar represents the nearest to perfection in its class. Every Autocar is built upon lines proven correct by experience; built of absolutely the best material, and with the best workmanship procurable.

Autocar records of actual performance bear out the claim that for good day-in-and-day-out, up-hill-and-down service, for durability and freedom from annoyance, the Autocar is unsurpassed.

The new car, Type XI, illustrated above, with its chassis, shows a number of very valuable improvements, accomplishing increased ease of control, safety, and simplicity.

Type VIII, Four-passenger car, and Type X, Runabout, are the cars which have made the present reputation of the Autocar, to which the new Type XI will surely add.

Write for catalogue and dealer's name.

THE AUTOCAR COMPANY, Ardmore, Pa.
Member A. L. A. M.

Type X
10 H. P.
Runabout
$900

Type VIII
Rear Entrance
Tonneau
$1,400

These ads were used in 1905.

ADVERTISEMENT

A Guarantee That Means Something

1905

Vesta

The Vesta Storage Battery

for igniting the gas engine in an automobile is guaranteed to every purchaser.
Money will be refunded if not satisfactory.

60 AMPERE HOUR CAPACITY 60

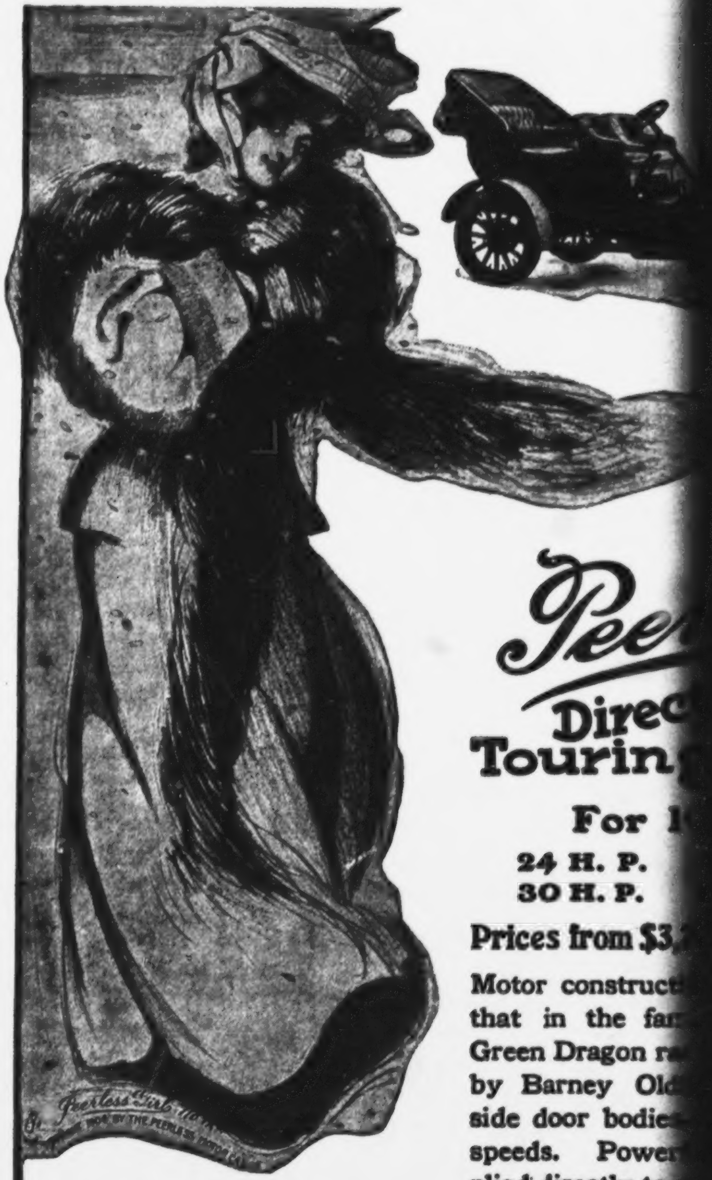
Securely packed in hard wood.

STANDARD SIZES

60 Amp. hour, 4 volt 9 long x 8⅛ high x 3⅞ wide, inches, price, $15.00
60 " " 6 " 9 " x 8⅛ " x 5⅛ " " " 22.50
60 " " 8 " 9 " x 8⅛ " x 7 " " " 30.00

Shipped anywhere fully charged ready for use.
Send for catalogue.

VESTA ACCUMULATOR CO.,
1336 Michigan Avenue, - - - - - CHICAGO.


Peerless Girl
1905 BY THE PEERLESS MOTOR CO.

Peer

Direc
Tourin

For 1
24 H. P.
30 H. P.

Prices from $3,

Motor construct
that in the fa
Green Dragon r
by Barney Old
side door bodie
speeds. Power
plied directly to

Simplicity of Construction—Perfection
Absolutely Dependable
Catalogue now ready.

Peerless Motor Car Co., 38 Lisbon St. C
Member Association Licensed Automobile Manufac

THE MARMON CAR

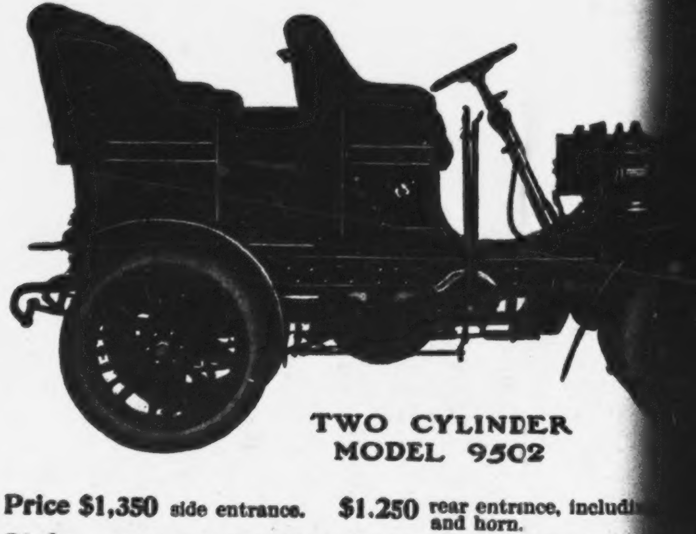
A MECHANICAL MASTERPIECE, marked by bold departures in design thoroughly tested in severest road work and by minute perfection of detail.

Powerful four-cylinder, air-cooled gasoline engine, with perfect automatic lubrication. Direct bevel-gear drive, delivering practically the full power of the motor to the rear wheels.

[illegible] three-point [illegible]

1905 STUDEBA

"The Automobile with a Reputation behin



TWO CYLINDER
MODEL 9502

Price $1,350 side entrance. **$1.250** rear entrance, includi and horn.

Style. This is best appreciated when it is compared with other

Size. Capacious seats and ample leg room for five occupants.

Finish. In upholstery and appointments it is fully equal to th

VERTISEMENT

uarantee That Means Something

5

Vesta

Vesta Storage Battery

niting the **gas engine** in an **automobile** is **guaran-**
every purchaser.
y will be refunded if not satisfactory.

0 AMPERE HOUR CAPACITY 60

ly packed in hard wood.

STANDARD SIZES

. hour, 4 volt 9 long x 8⅛ high x 3⅞ wide, inches, price, $15.00
" 6 " 9 " x 8⅛ " x 5⅛ " " " 22.50
" 8 " 9 " x 8⅛ " x 7 " " " 30.00

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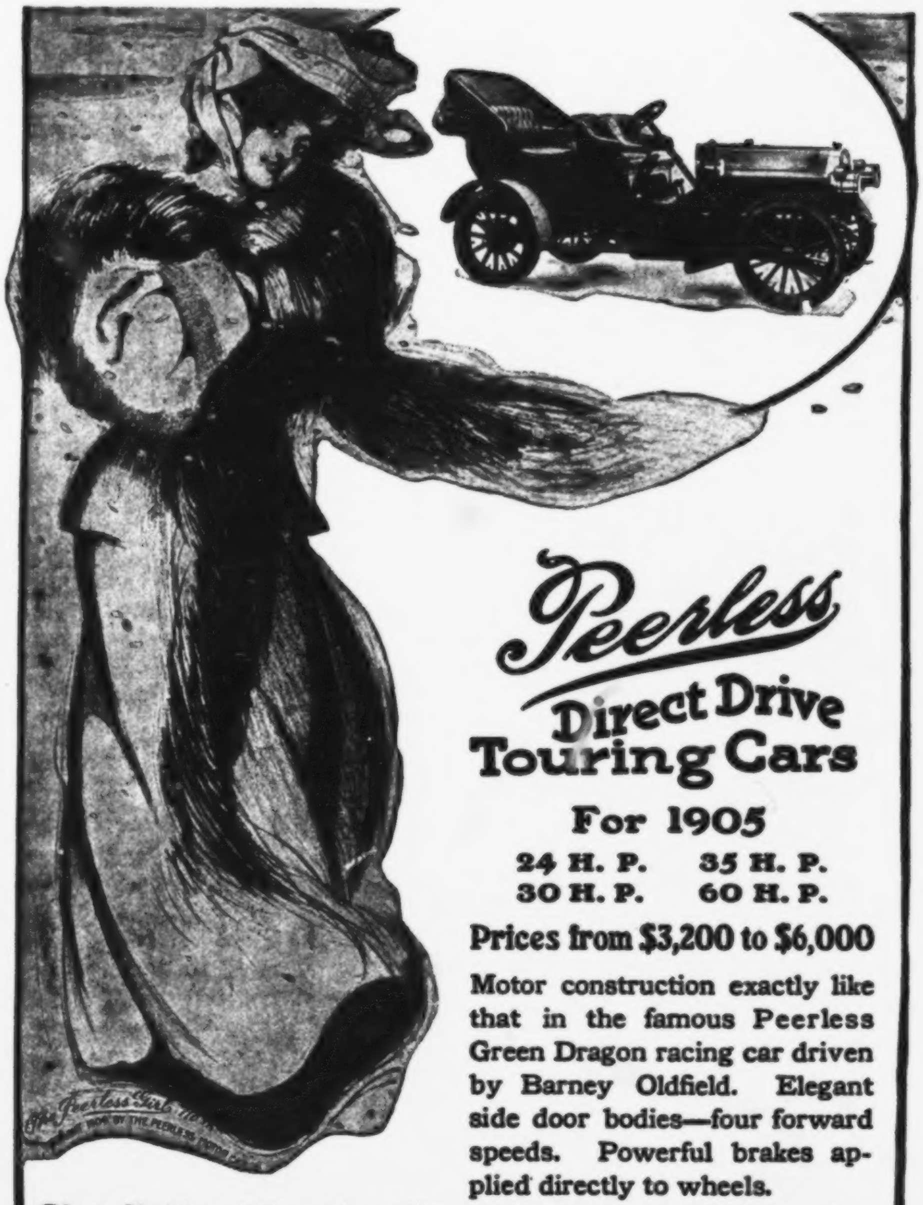
for catalogue.

STA ACCUMULATOR CO.,
lichigan Avenue, - - - - - CHICAGO.



Peerless
Direct Drive Touring Cars
For 1905

24 H. P. 35 H. P.
30 H. P. 60 H. P.

Prices from $3,200 to $6,000

Motor construction exactly like that in the famous Peerless Green Dragon racing car driven by Barney Oldfield. Elegant side door bodies—four forward speeds. Powerful brakes applied directly to wheels.

Simplicity of Construction—Perfection of Control—Absolutely Dependable

Catalogue now ready.

Peerless Motor Car Co., 38 Lisbon St. Cleveland, O.

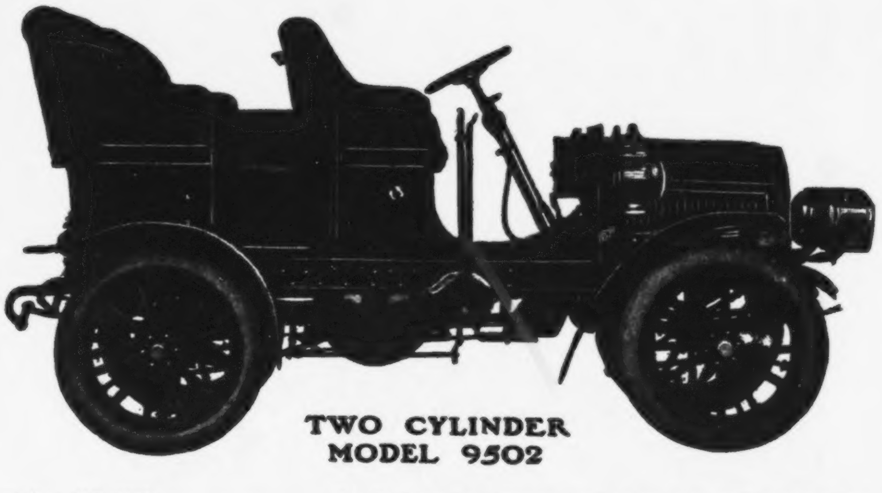
Member Association Licensed Automobile Manufacturers.

IE MARMON CAR

ECHANICAL MASTERPIECE marked by bold
partures in design thoroughly tested in success [illegible] road
and by minute perfection of detail.
[illegible] four-cylinder, air-cooled gas [illegible]
automatic lubrication. Direct bevel-gear drive, deliver
ally the full power of the motor to the rear wheels

1905 STUDEBAKER

"The Automobile with a Reputation behind it."



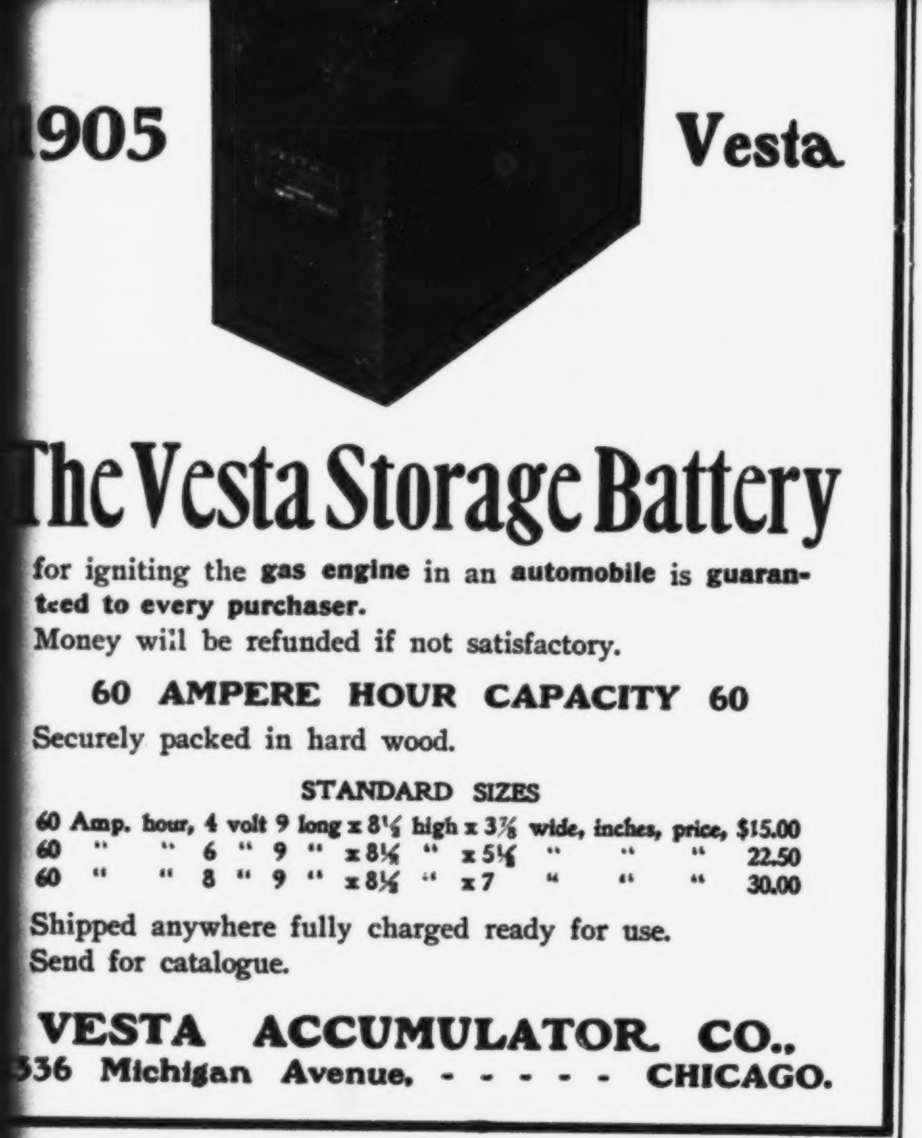
TWO CYLINDER
MODEL 9502

Price $1,350 side entrance. **$1.250** rear entrance, including side lights, tail light and horn.

Style. This is best appreciated when it is compared with other cars.

Size. Capacious seats and ample leg room for five occupants.

Finish. [illegible]



1905 **Vesta**

The Vesta Storage Battery

for igniting the **gas engine** in an **automobile** is **guaranteed to every purchaser.**
Money will be refunded if not satisfactory.

60 AMPERE HOUR CAPACITY 60

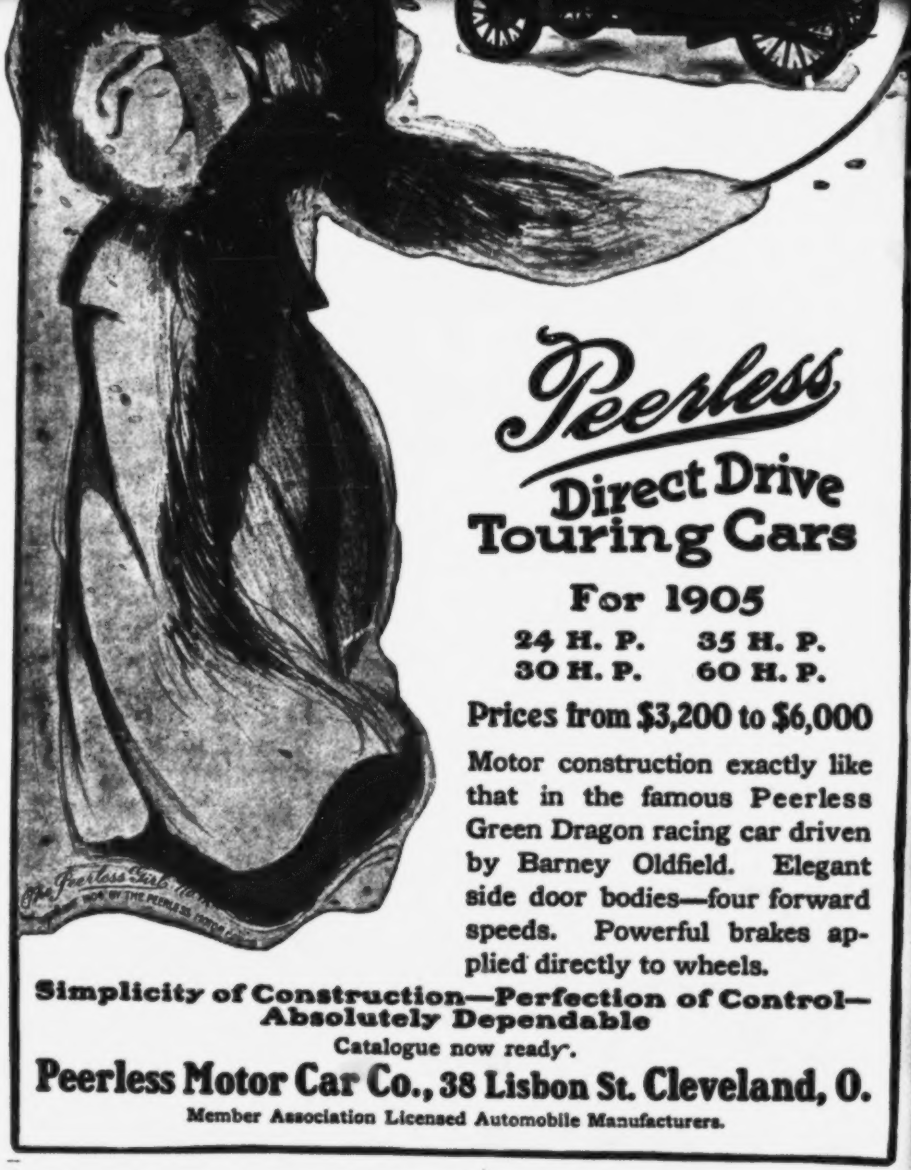
Securely packed in hard wood.

STANDARD SIZES

60 Amp. hour, 4 volt 9 long x 8¼ high x 3⅞ wide, inches, price, $15.00
60 " " 6 " 9 " x 8¼ " x 5¼ " " " 22.50
60 " " 8 " 9 " x 8¼ " x 7 " " " 30.00

Shipped anywhere fully charged ready for use.
Send for catalogue.

VESTA ACCUMULATOR CO.,
336 Michigan Avenue, - - - - - CHICAGO.



The Peerless Girl

Peerless
Direct Drive Touring Cars
For 1905

24 H. P. **35 H. P.**
30 H. P. **60 H. P.**

Prices from $3,200 to $6,000

Motor construction exactly like that in the famous Peerless Green Dragon racing car driven by Barney Oldfield. Elegant side door bodies—four forward speeds. Powerful brakes applied directly to wheels.

Simplicity of Construction—Perfection of Control—Absolutely Dependable

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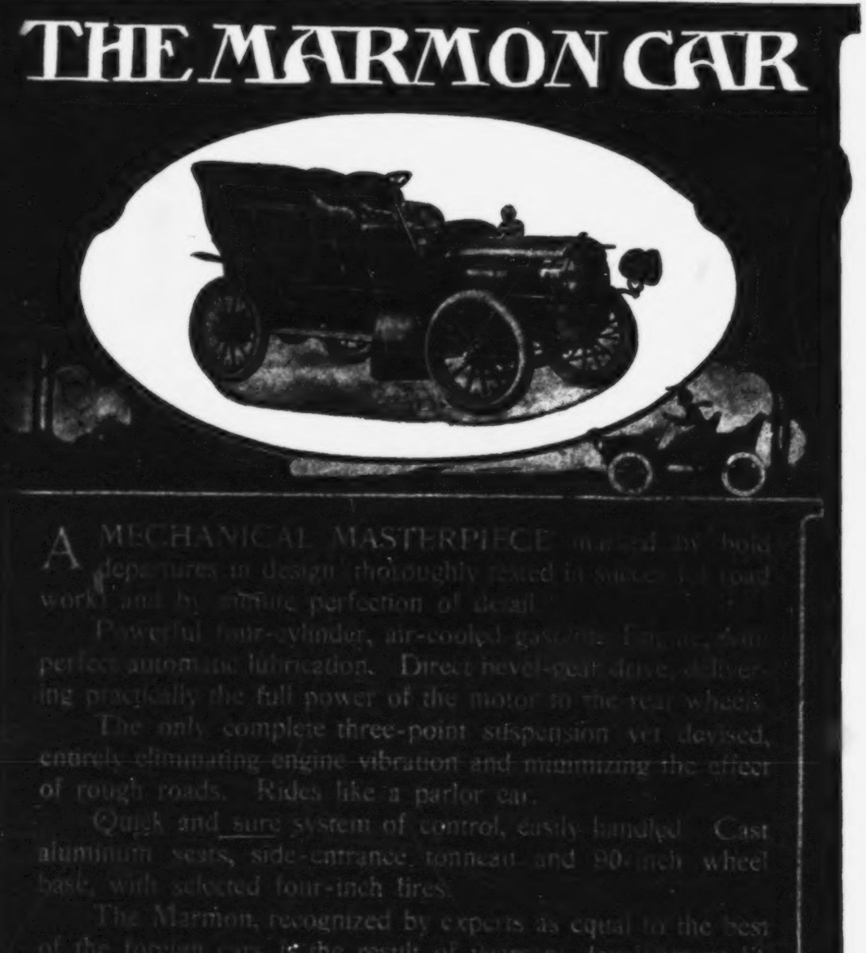


THE MARMON CAR

A MECHANICAL MASTERPIECE marked by bold departures in design thoroughly tested in successful road work and by minute perfection of detail.

Powerful four-cylinder, air-cooled gasoline Engine, with perfect automatic lubrication. Direct bevel-gear drive, delivering practically the full power of the motor to the rear wheels.

The only complete three-point suspension yet devised, entirely eliminating engine vibration and minimizing the effect of rough roads. Rides like a parlor car.

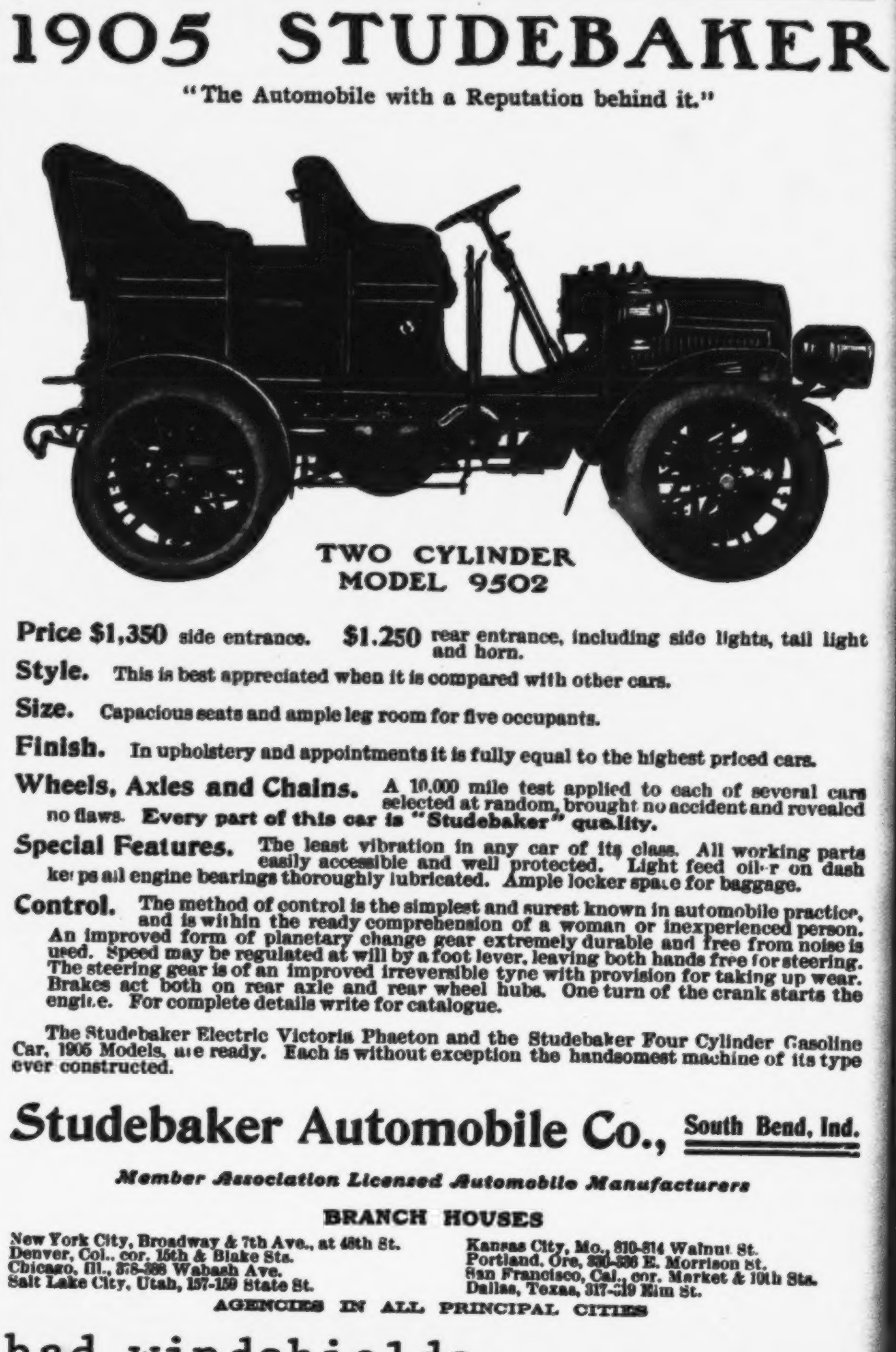
Quick and sure system of control, easily handled. Cast aluminum seats, side-entrance tonneau and 90-inch wheel base, with selected four-inch tires.

The Marmon, recognized by experts as equal to the best of the foreign cars, is the result of years of development by a house that has for half a century stood pre-eminent among the builders of high-grade machinery. The car is a demonstrated success of two seasons, with every owner an enthusiastic votary.

Write for [illegible]

PRICE, $2,500

NORDYKE & MARMON COMPANY
Factory and Offices INDIANAPOLIS, IND.



1905 STUDEBAKER

"The Automobile with a Reputation behind it."

TWO CYLINDER
MODEL 9502

Price $1,350 side entrance. **$1.250** rear entrance, including side lights, tail light and horn.

Style. This is best appreciated when it is compared with other cars.

Size. Capacious seats and ample leg room for five occupants.

Finish. In upholstery and appointments it is fully equal to the highest priced cars.

Wheels, Axles and Chains. A 10,000 mile test applied to each of several cars selected at random, brought no accident and revealed no flaws. **Every part of this car is "Studebaker" quality.**

Special Features. The least vibration in any car of its class. All working parts easily accessible and well protected. Light feed oiler on dash keeps all engine bearings thoroughly lubricated. Ample locker space for baggage.

Control. The method of control is the simplest and surest known in automobile practice, and is within the ready comprehension of a woman or inexperienced person. An improved form of planetary change gear extremely durable and free from noise is used. Speed may be regulated at will by a foot lever, leaving both hands free for steering. The steering gear is of an improved irreversible tyne with provision for taking up wear. Brakes act both on rear axle and rear wheel hubs. One turn of the crank starts the engine. For complete details write for catalogue.

The Studebaker Electric Victoria Phaeton and the Studebaker Four Cylinder Gasoline Car, 1905 Models, are ready. Each is without exception the handsomest machine of its type ever constructed.

Studebaker Automobile Co., South Bend, Ind.

Member Association Licensed Automobile Manufacturers

BRANCH HOUSES

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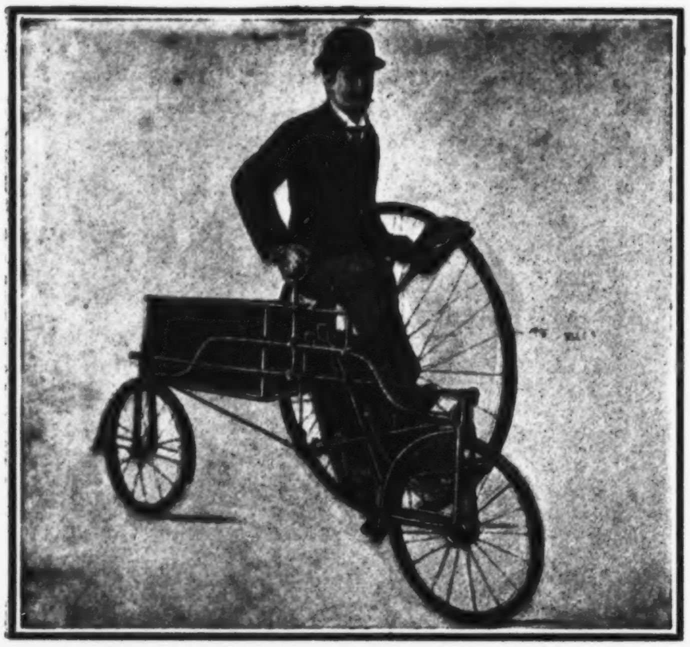
Denver, Col., cor. 15th & Blake Sts.
Chicago, Ill., 378-388 Wabash Ave.
Salt Lake City, Utah, 157-159 State St.
Kansas City, Mo., 810-814 Walnut St.
Portland, Ore, 330-336 E. Morrison St.
San Francisco, Cal., cor. Market & 10th Sts.
Dallas, Texas, 317-319 Elm St.

AGENCIES IN ALL PRINCIPAL CITIES

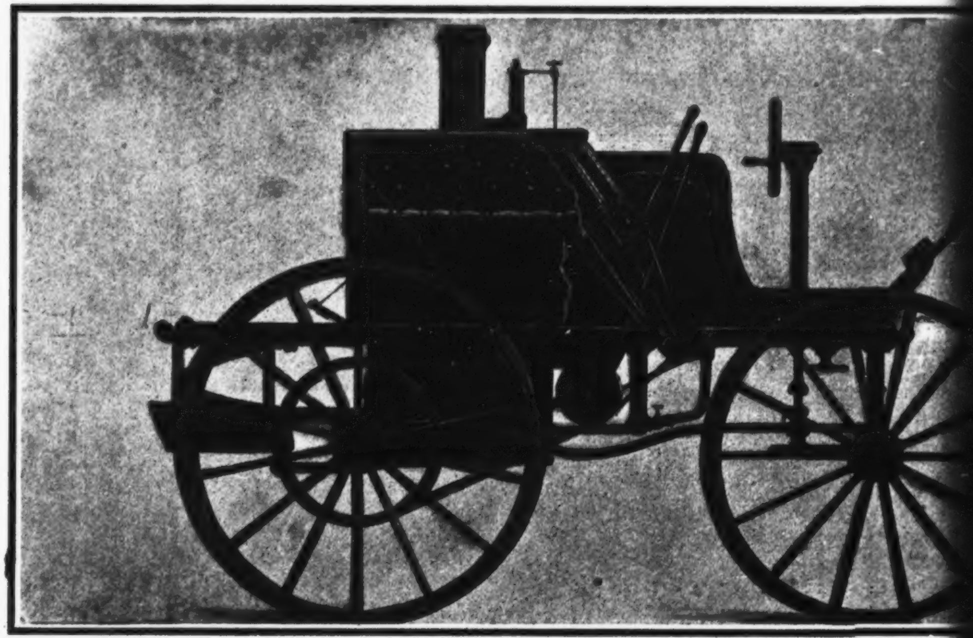
None of these cars had windshields.

CARS



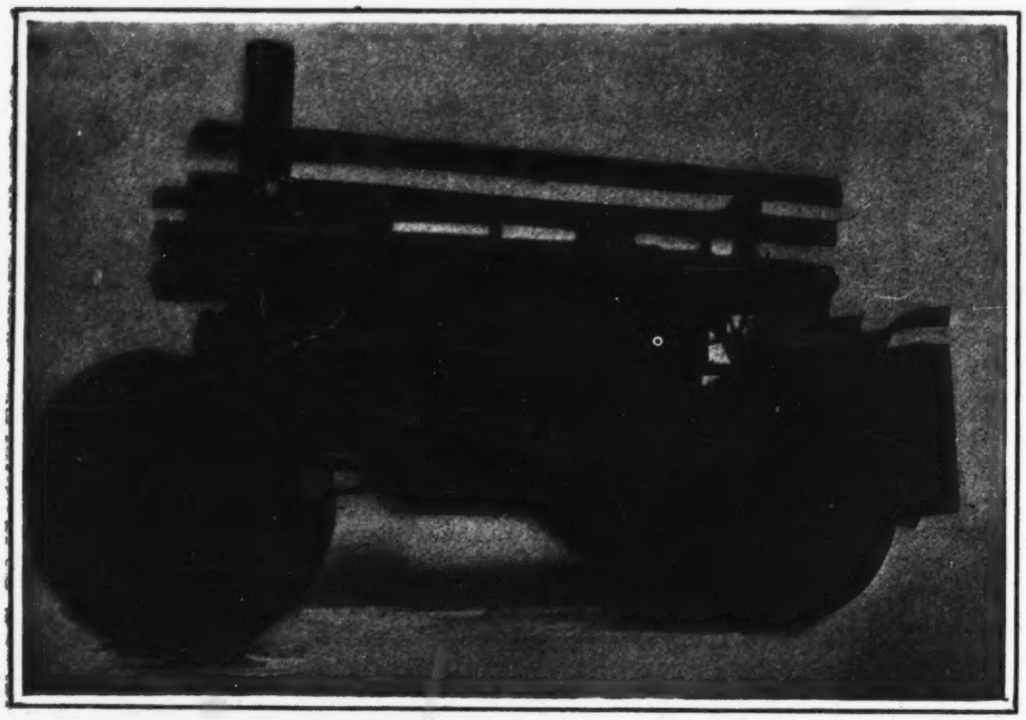
A. L. Riker's Electric Tricycle, Built Twenty Years Ago.

A small battery motor drove the large wheel by friction.



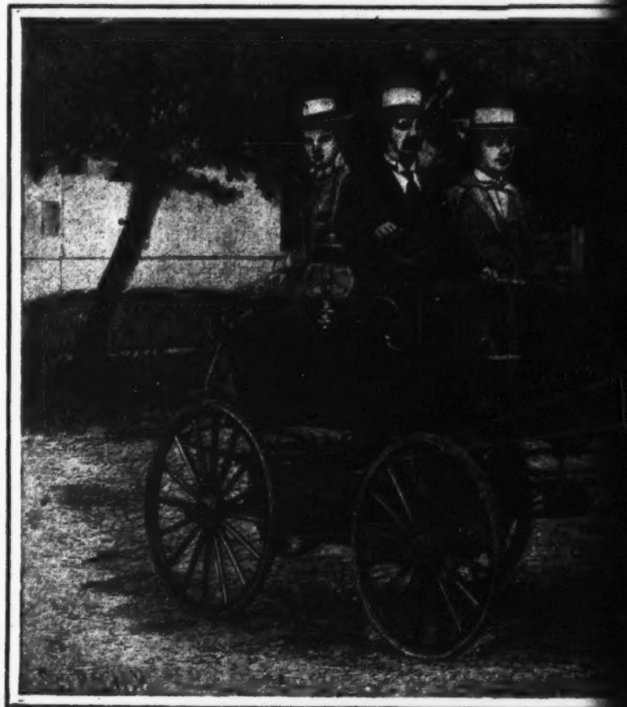
The House Brothers' Steam Wagon of Forty Years Ago.

This is the first machine built along the lines of the present-day automobile.



Richard Dudgeon's Steam Road Car, Built in 1860.

The original machine, of which this is a duplicate, was constructed in 1855.



Mr. R. E. Olds' First Gasoline Machine,

The 5-horse-power motor and 3-speed transmission were arran

RS

Electric Tricycle, Built Twenty Years Ago.

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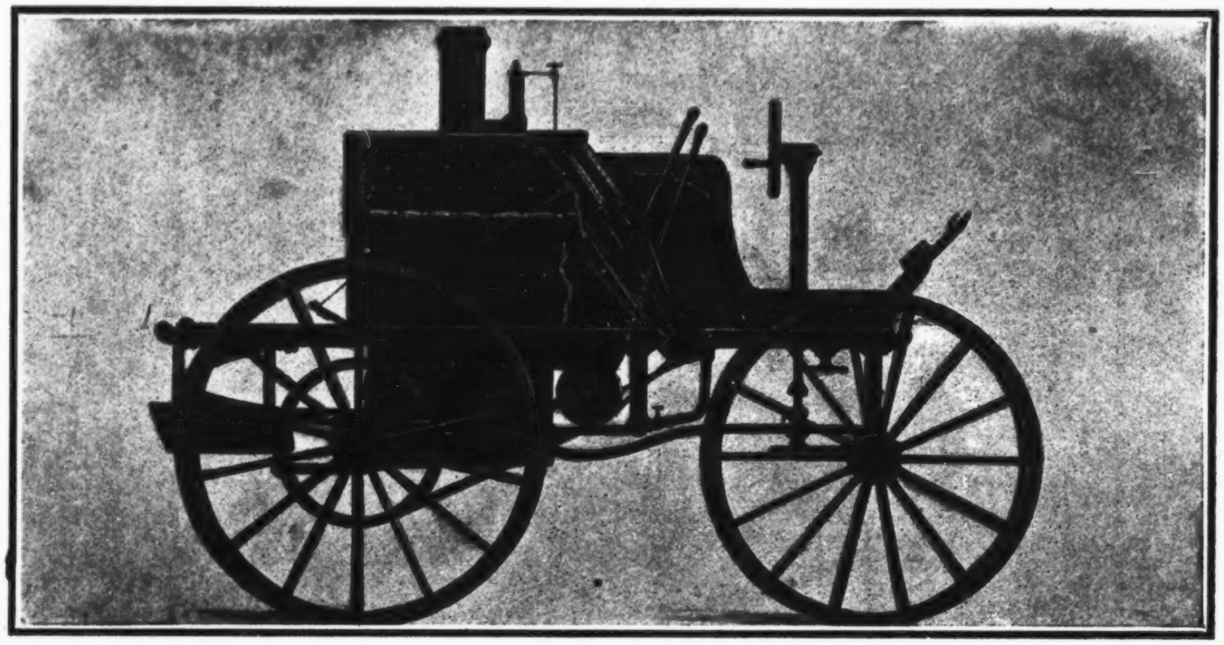

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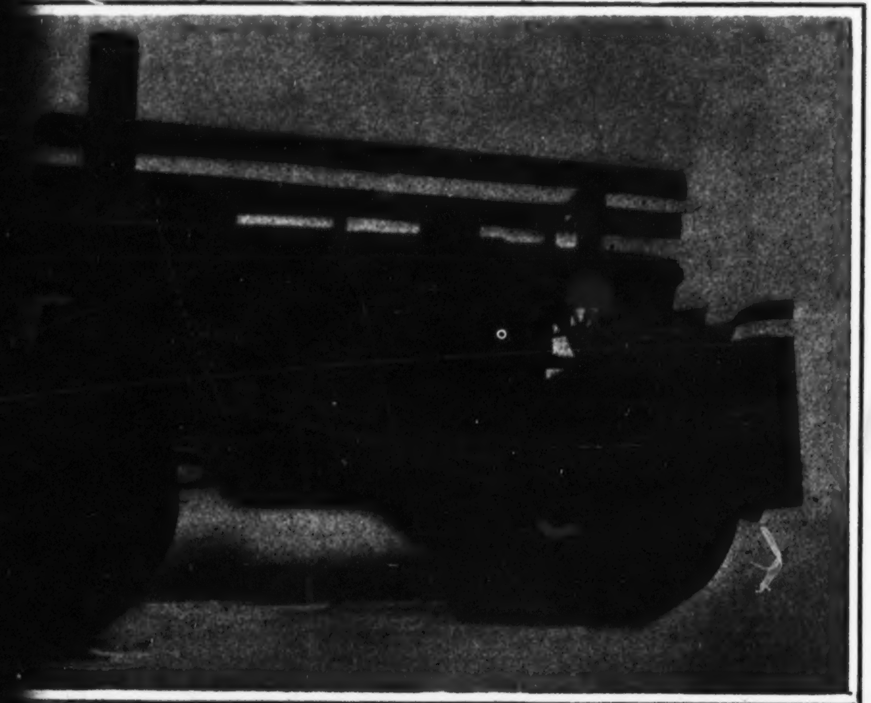

Richard Dudgeon's Steam Road Car, Built in 1860.

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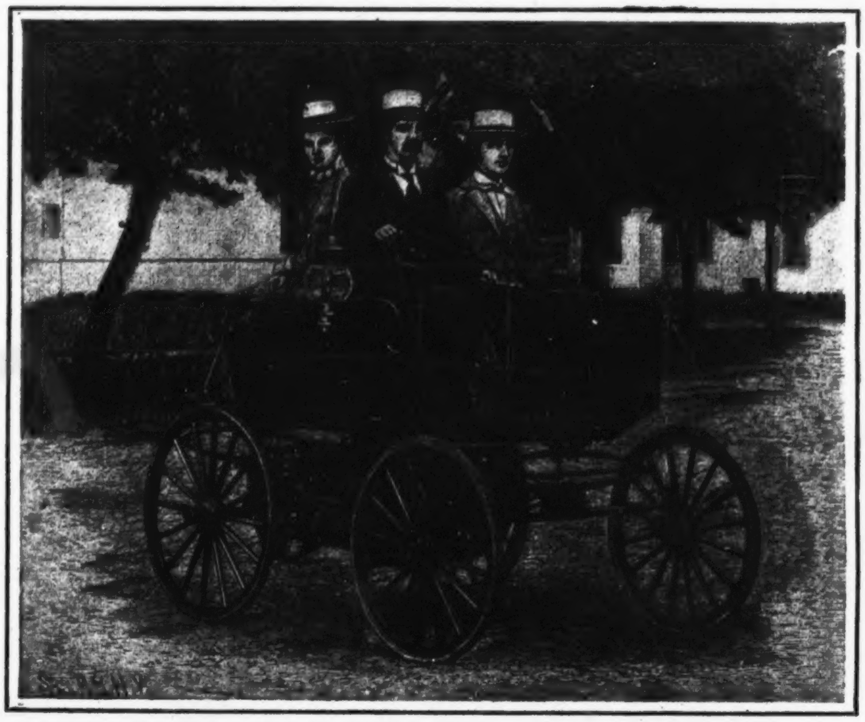
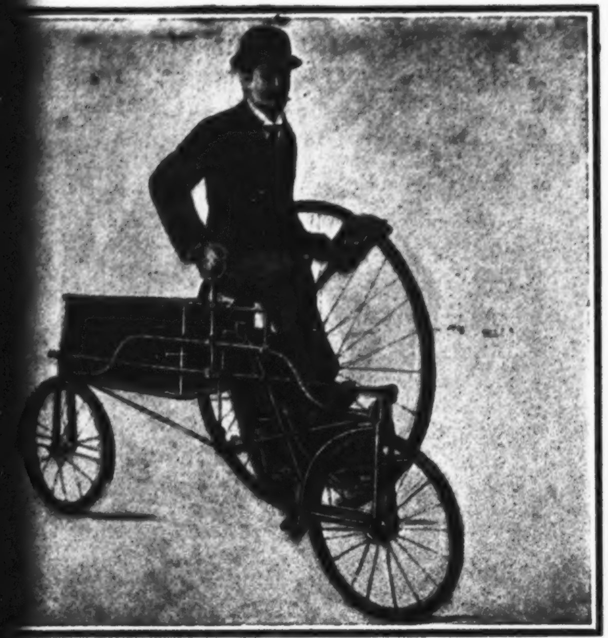


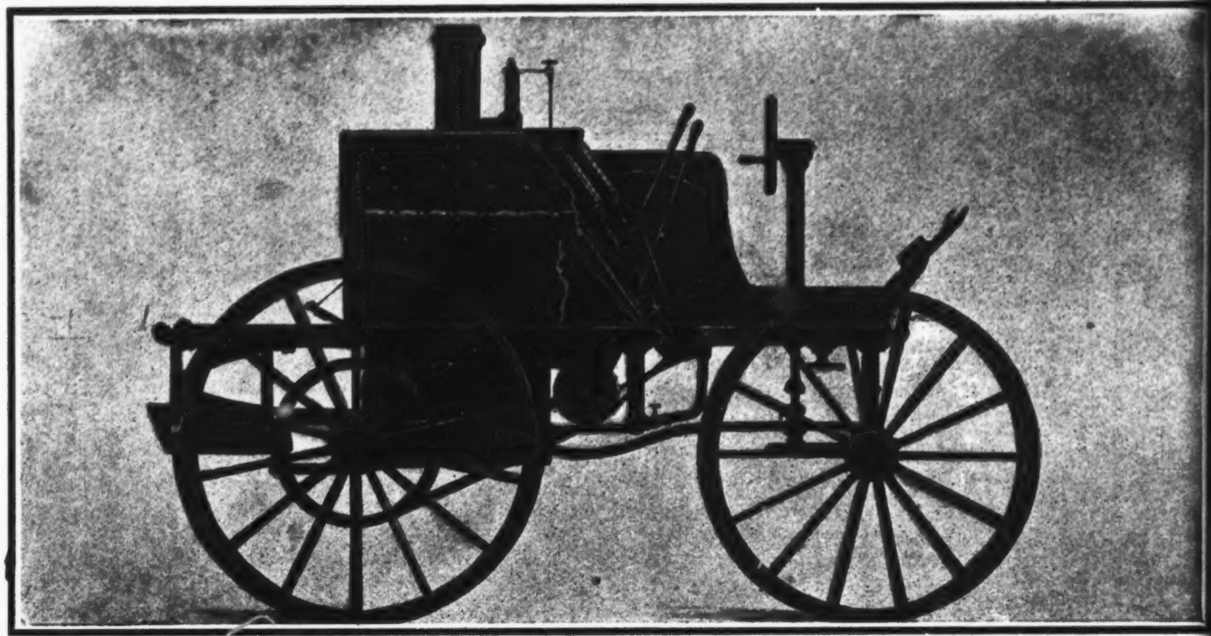
Mr. R. E. Olds' First Gasoline Machine, Built in 1896.

The 5-horse-power motor and 3-speed transmission were arranged on the running gear.



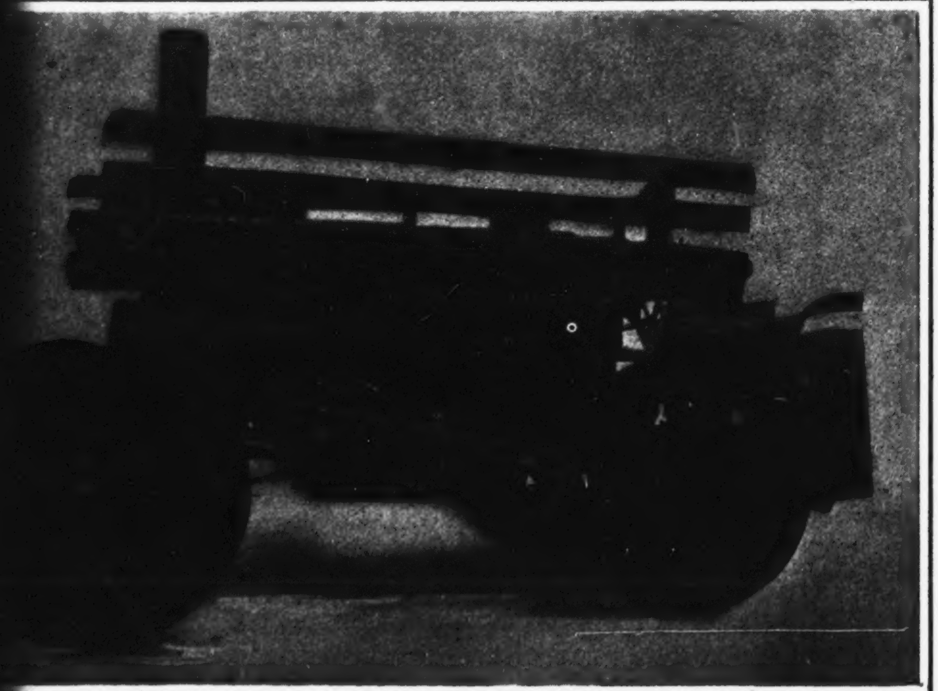
iker's Electric Tricycle, Built Twenty Years Ago.

A small battery motor drove the large wheel by friction.



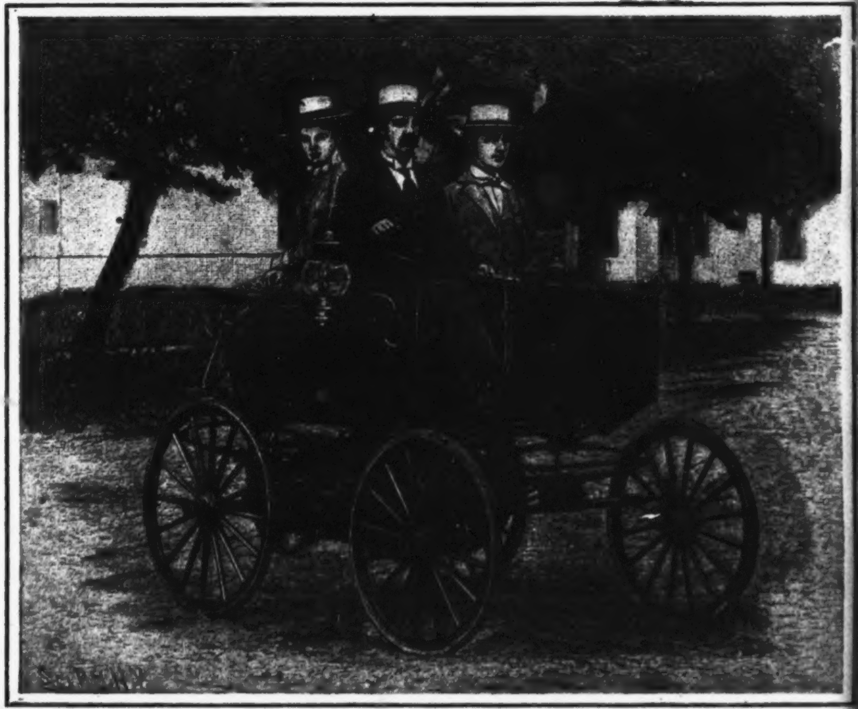
The House Brothers' Steam Wagon of Forty Years Ago.

This is the first machine built along the lines of the present-day automobile.



Richard Dudgeon's Steam Road Car, Built in 1860.

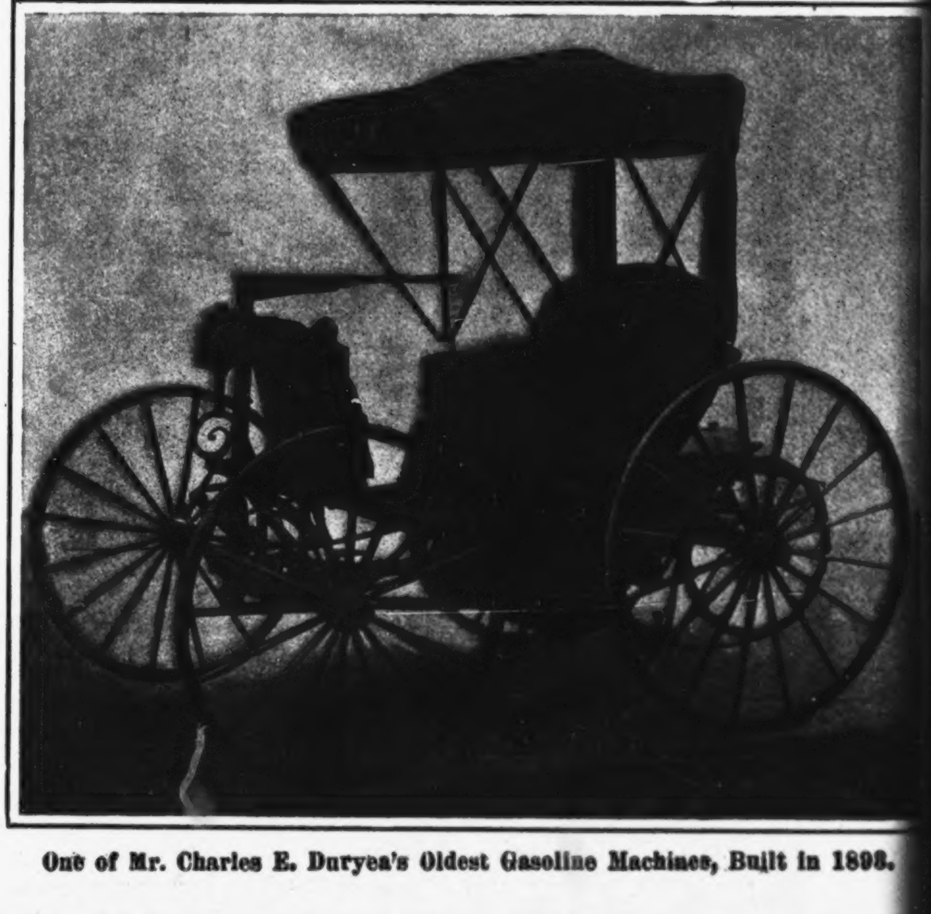
The original machine, of which this is a duplicate, was constructed in 1855.



Mr. R. E. Olds' First Gasoline Machine, Built in 1896.

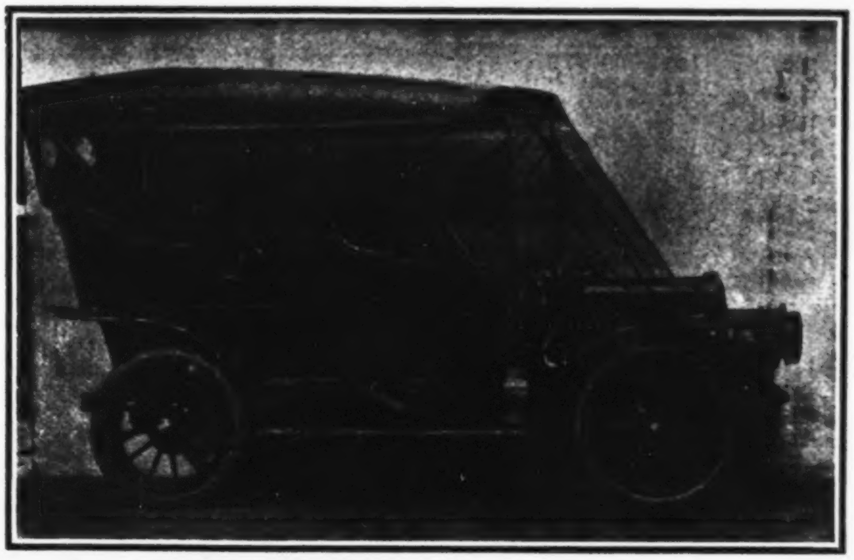
The 5-horse-power motor and 3-speed transmission were arranged on the running gear.

Mr. Elwood Haynes's First Gasoline Automobile, Built in 1893.



One of Mr. Charles E. Duryea's Oldest Gasoline Machines, Built in 1898.

CARS



The 30-Horse-Power Studebaker Touring Car.

Engine: 4⅛ x 5¼, 4-cylinder, water-cooled; make-and-break igniters with magneto. Transmission: 3-speed progressive type. Clutch: Cone. Drive: Shaft. Weight: 2,400 pounds. Wheel base: 104 inches. Tires: 34 x 4.

The 45-Horse-Power Royal Tourist Limousine

Engine: 5⅛ x 5⅛, 4-cylinder, water-cooled. Transmission: 3-speed selective ty
Weight: 3,700 pounds. Wheel base: 114 inches. Tires

The Frayer-Miller 24-Horse-Power Coupé With Driver's Seat Behind.

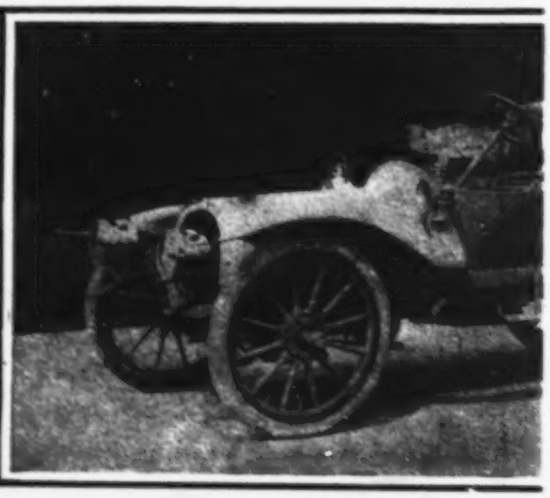
Engine: 4⅞ x 5¼, 4-cylinder, air cooled with blower. Transmission: 4-speed selective type. Clutch: Cone. Drive: Shaft. Weight: 2,950 pounds. Wheel base: 96 inches. Tires: Solid, 32 x 3½.

The New 20-Horse-Power Cadillac Light Tourin

Engine: 4 x 4½, 4-cylinder, water-cooled. Transmission: 3-speed selective type. Clutch
2,000 pounds. Wheel base: 100 inches. Tires: 32 x 3½.

The Locomobile 35-Horse-Power, 7-Passenger Touring Car.

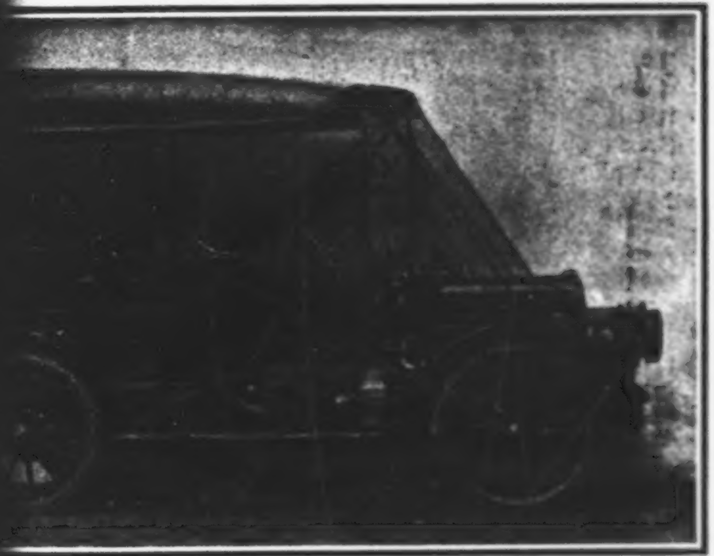
Engine: 4½ x 5½, 4-cylinder, water-cooled; low-tension magneto ignition. Transmission: 4-speed selective type. Clutch: Cone. Drive: Double side chain. Weight: 2,900 pounds. Wheel base: 120 inches. Tires: Front, 34 x 4; rear, 34 x 4½.



The 20-Horse-Power Aerocar

Engine: 4 x 4, 4-cylinder, air-cooled. Transmission: 3-speec
type-disk. Drive: Shaft. Weight: 2,100 pounds. Wheel bas

RS



The 30-Horse-Power Studebaker Touring Car.

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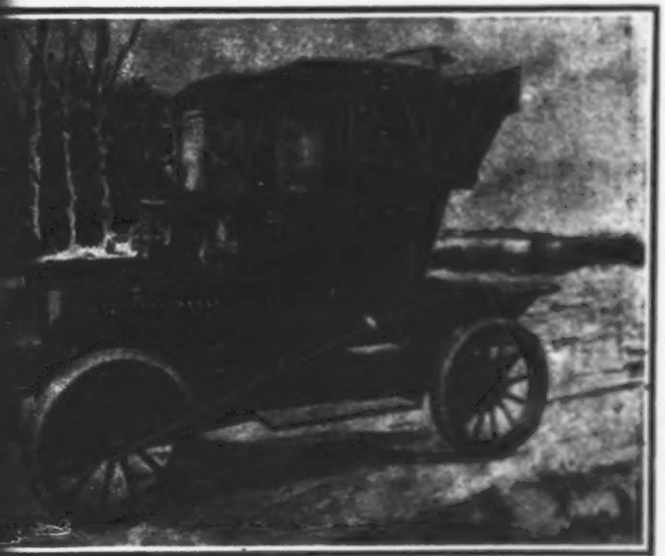
ogressive type. Clutch: Cone. Drive: Shaft. Weight: 2,400 pounds. Wheel
Tires: 34 x 4.

The 45-Horse-Power Royal Tourist Limousine for Winter Use.

Engine: 5¼ x 5¼, 4-cylinder, water-cooled. Transmission: 3-speed selective type. Clutch: Cone. Drive: Shaft. Weight: 3,300 pounds. Wheel base: 114 inches. Tires: 34 x 4½.



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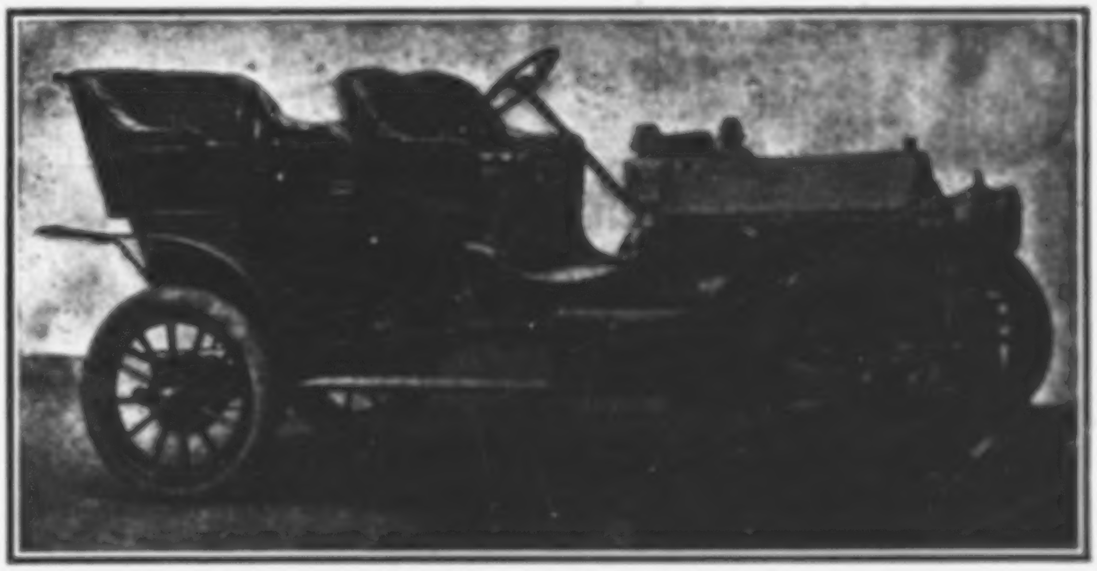
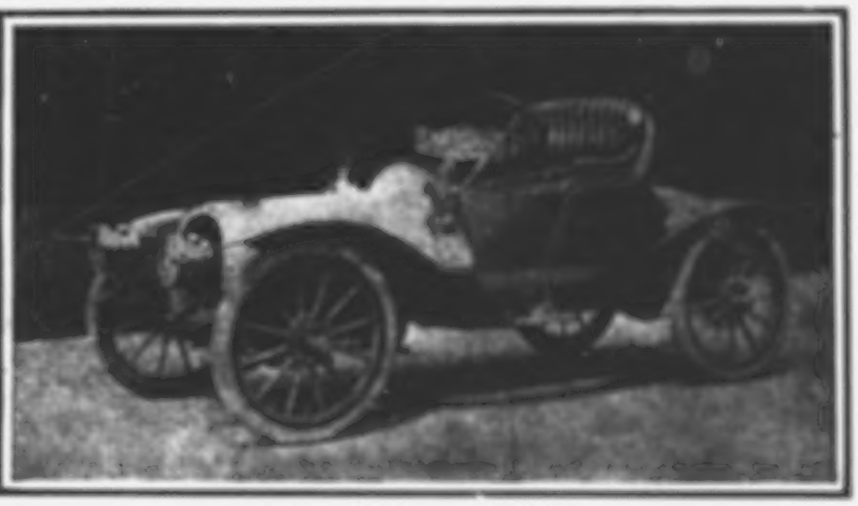


The New 20-Horse-Power Cadillac Light Touring Car.

Engine: 4 x 4½, 4-cylinder, water-cooled. Transmission: 3-speed selective type. Clutch: Cone. Drive: Shaft. Weight: 2,000 pounds. Wheel base: 100 inches. Tires: 32 x 3½.

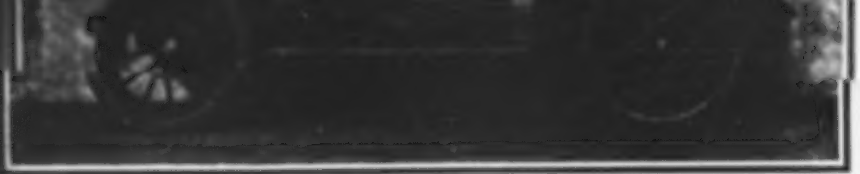
The Locomobile 35-Horse-Power, 7-Passenger Touring Car.

¼, 4-cylinder, water-cooled; low-tension magneto ignition. Transmission: 4-speed selective type. Clutch;
ble side chain. Weight: 2,800 pounds. Wheel base: 120 inches. Tires: Front, 34 x 4; rear, 36 x 4½.



The 20-Horse-Power Aerocar Runabout.

Engine: 4 x 4, 4-cylinder, air-cooled. Transmission: 2-speed progressive type. Clutch: Multiple-disk. Drive: Shaft. Weight: 2,100 pounds. Wheel base: 104 inches. Tires: 32 x 3½.

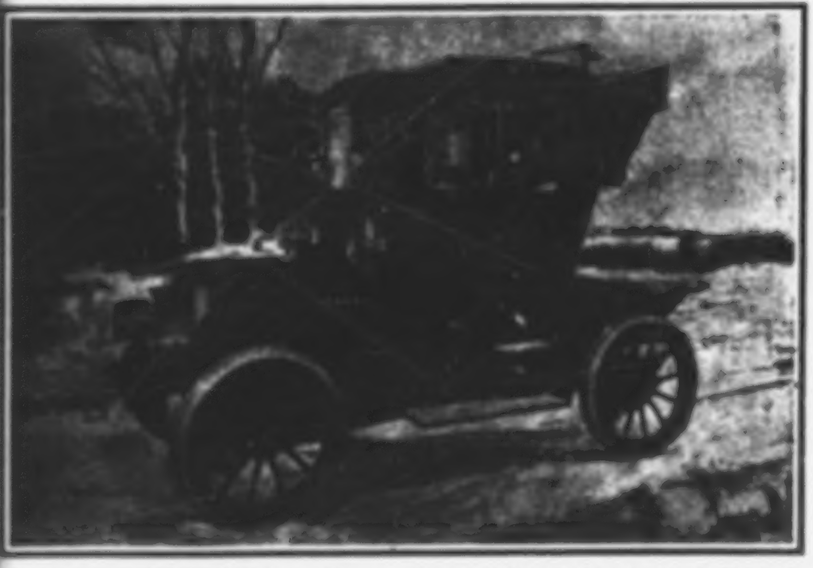


The 30-Horse-Power Studebaker Touring Car.

Engine: 4¼ x 5¼, 4-cylinder, water-cooled; make-and-break ignitors with magneto. Transmission: 3-speed progressive type. Clutch: Cone. Drive: Shaft. Weight: 2,400 pounds. Wheel base: 104 inches. Tires: 34 x 4.

The 45-Horse-Power Royal Tourist Limousine for Winter Use.

Engine: 5⅛ x 5¼, 4-cylinder, water-cooled. Transmission: 3-speed selective type. Clutch: Cone. Driv
Weight: 3,700 pounds. Wheel base: 114 inches. Tires: 34 x 4½.



The Frayer-Miller 24-Horse-Power Coupé With Driver's Seat Behind.

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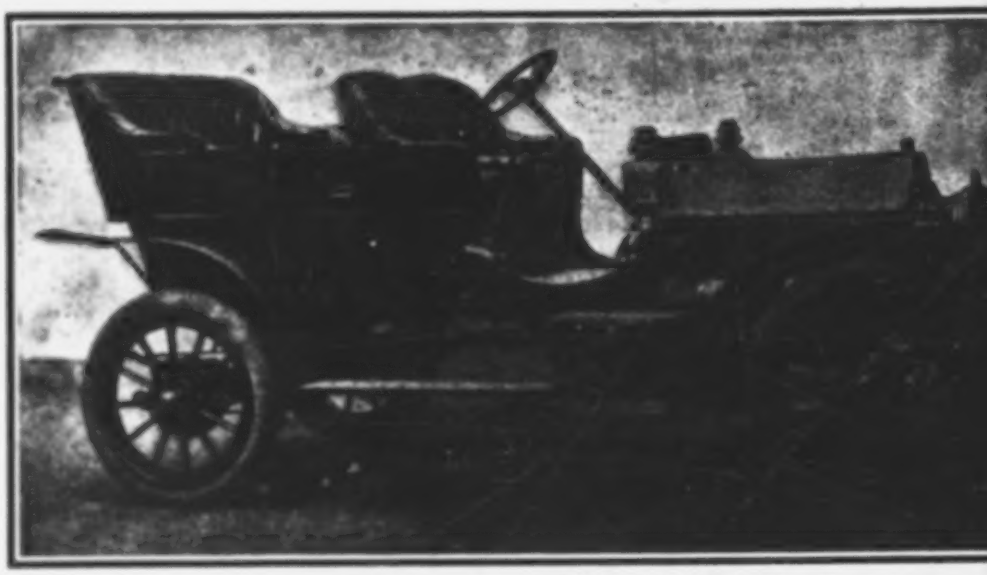
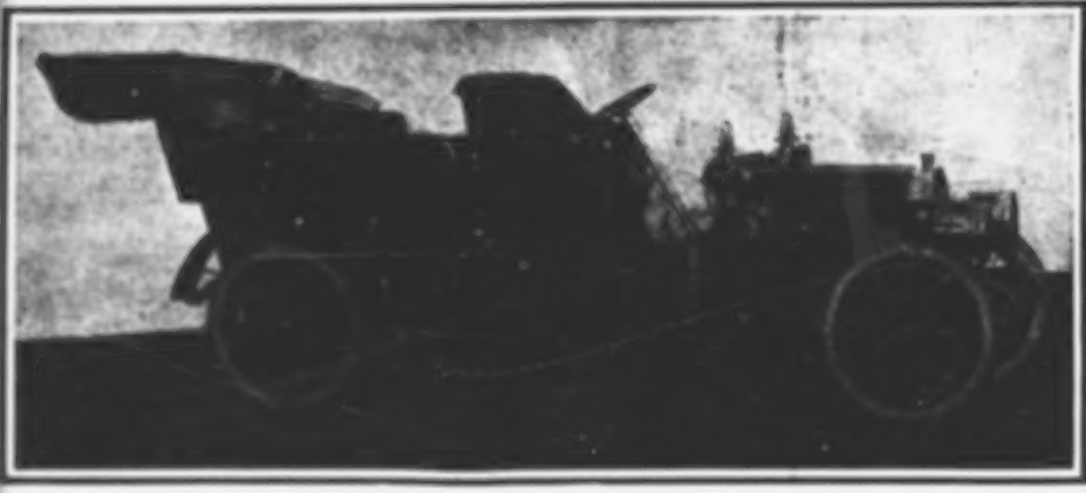


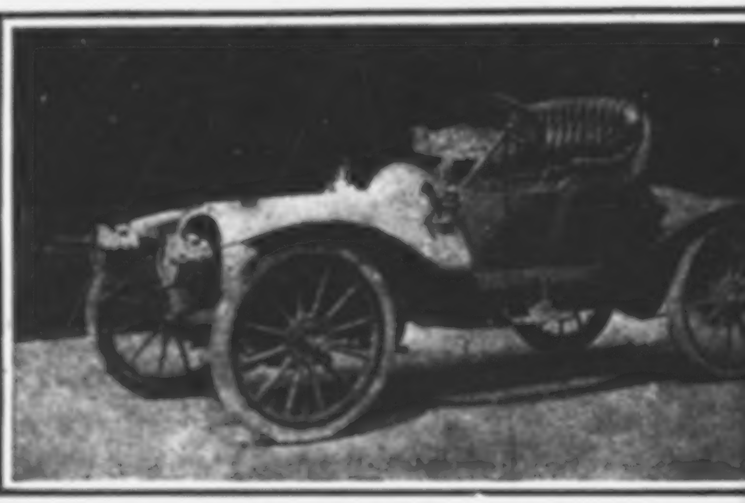
The New 20-Horse-Power Cadillac Light Touring Car.

Engine: 4 x 4½, 4-cylinder, water-cooled. Transmission: 3-speed selective type. Clutch: Cone. Drive: Shaft.
2,000 pounds. Wheel base: 100 inches. Tires: 32 x 3½.



The Locomobile 35-Horse-Power, 7-Passenger Touring Car.

Engine: 4¾ x 5¼, 4-cylinder, water-cooled; low-tension magneto ignition. Transmission: 4-speed selective type. Clutch: Cone. Drive: Double side chain. Weight: 3,400 pounds. Wheel base: 120 inches. Tires: Front, 34 x 4; rear, 34 x 4½.

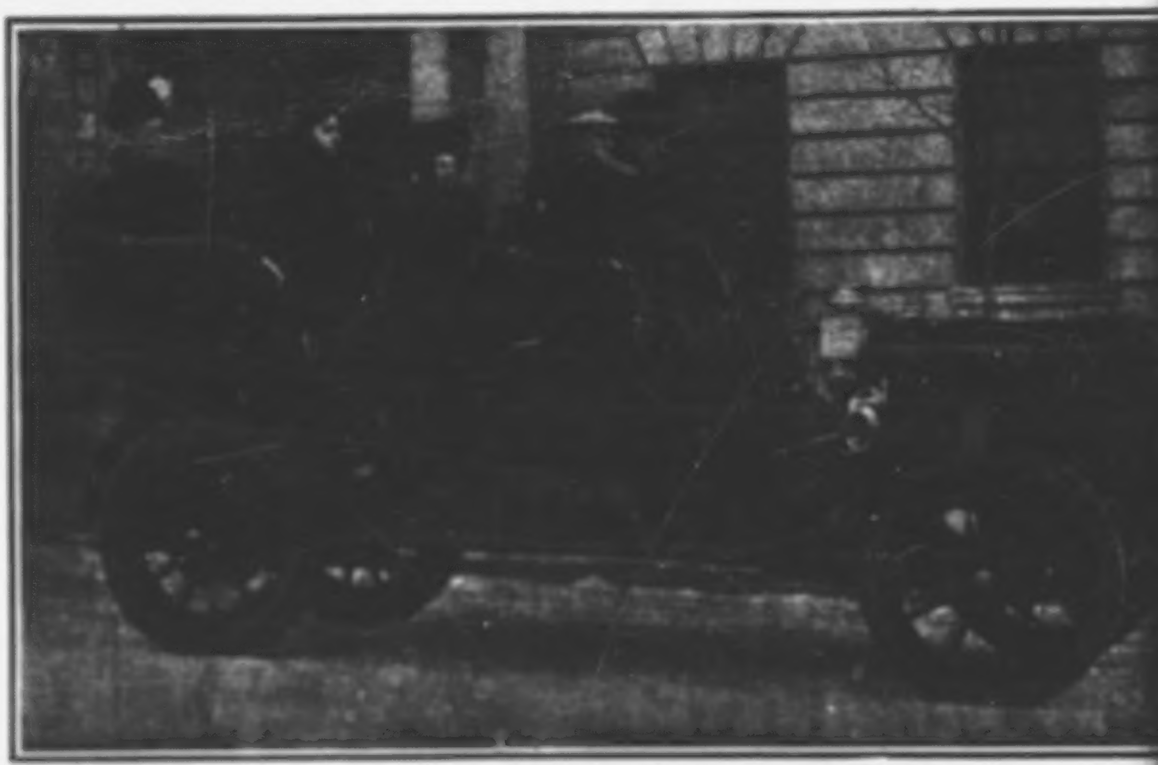


The 20-Horse-Power Aerocar Runabout.

Engine: 4 x 4, 4-cylinder, air-cooled. Transmission: 3-speed progressive type. Cl
tiple-disk. Drive: Shaft. Weight: 2,100 pounds. Wheel base: 104 inches. Tires:

The 16-Horse-Power Maxwell Touring Car Which Ran 3,000 Miles Without Stopping the Engine.

Engine: 2-cylinder, 5 x 5, double opposed type, water-cooled. Transmission: 2-speed progressive type. Clutch: Multiple disk in gear box. Drive: Shaft. Weight: 1,750 pounds. Wheel base: 86 inches. Tires: 30 x 3½.



The New White 30-Horse-Power Steam Touring Car With Pullman Body.

Engine: Compound with cylinders of 3 and 5 inch bore by 4½ inches stroke. Boiler: Flash type maintaining steam pressure o
pounds. Weight: 3,000 pounds. Wheel base: 115 inches. Tires: Front, 32 x 4; rear, 34 x 4½. The new method of closing the s
the fenders and running board and the body by means of patent leather strips secured by lacing or buttons, is shown in the pho
new type of square oil lamps are also to be noted.

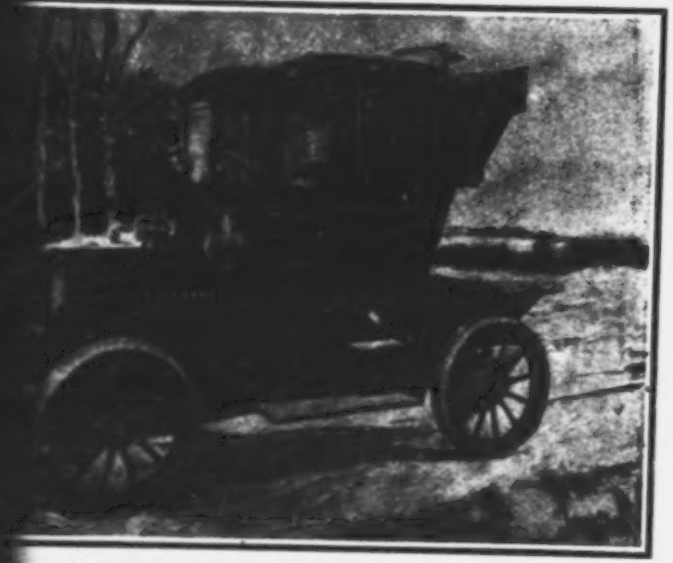
SOME LEADING TYPES OF 1907 AUTOMOBILES.

The 30-Horse-Power Studebaker Touring Car.

4, 4-cylinder, water-cooled; make-and-break igniters with magneto. Transmis-
gressive type. Clutch: Cone. Drive: Shaft. Weight: 2,400 pounds. Wheel
Tires: 34 x 4.

The 45-Horse-Power Royal Tourist Limousine for Winter Use.

Engine: 5⅛ x 5¼. 4-cylinder, water-cooled. Transmission: 3-speed selective type. Clutch: Cone. Drive: Shaft. Weight: 3,700 pounds. Wheel base: 114 inches. Tires: 34 x 4½.



ller 24-Horse-Power Coupé With Driver's Seat Behind.

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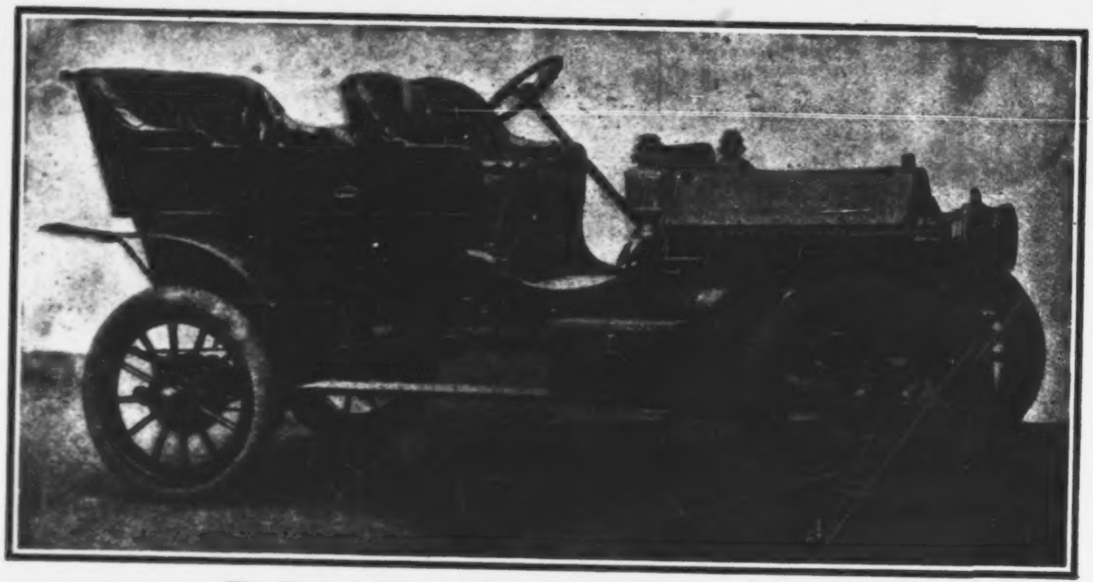
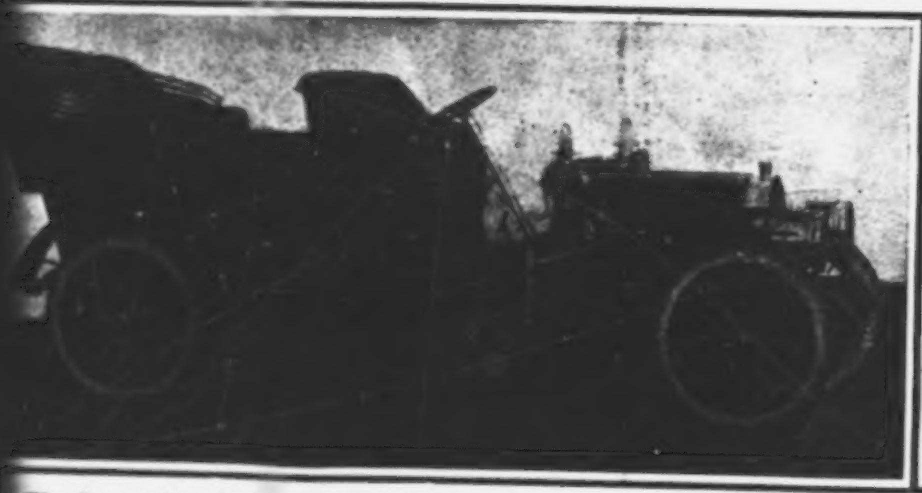
Weight: 2,950 pounds. Wheel base: 96 inches. Tires: Solid, 32 x 3½.



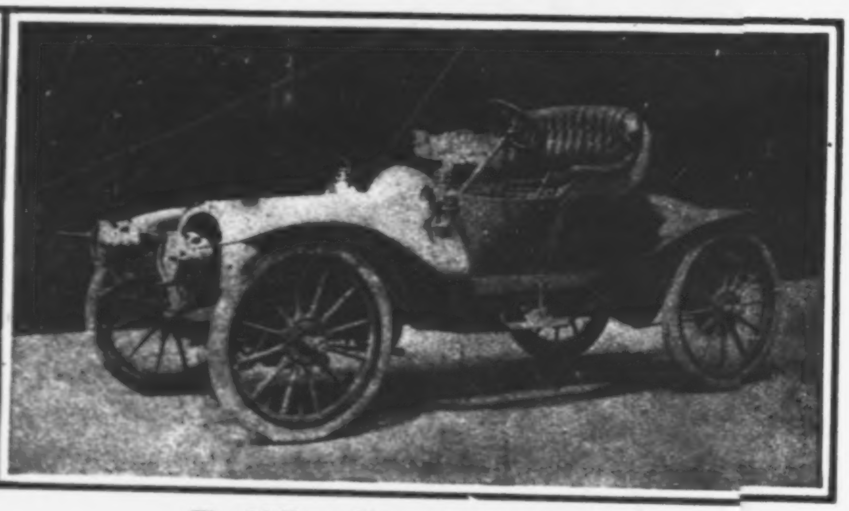
The New 20-Horse-Power Cadillac Light Touring Car.

Engine: 4 x 4½, 4-cylinder, water-cooled. Transmission: 3-speed selective type. Clutch: Cone. Drive: Shaft. Weight: 2,000 pounds. Wheel base: 100 inches. Tires: 32 x 3½.



The Locomobile 35-Horse-Power, 7-Passenger Touring Car.

4-cylinder, water-cooled; low-tension magneto ignition. Transmission: 4-speed selective type. Clutch:
side chain. Weight: 2,800 pounds. Wheel base: 120 inches. Tires: Front, 34 x 4; rear, 34 x 4½.

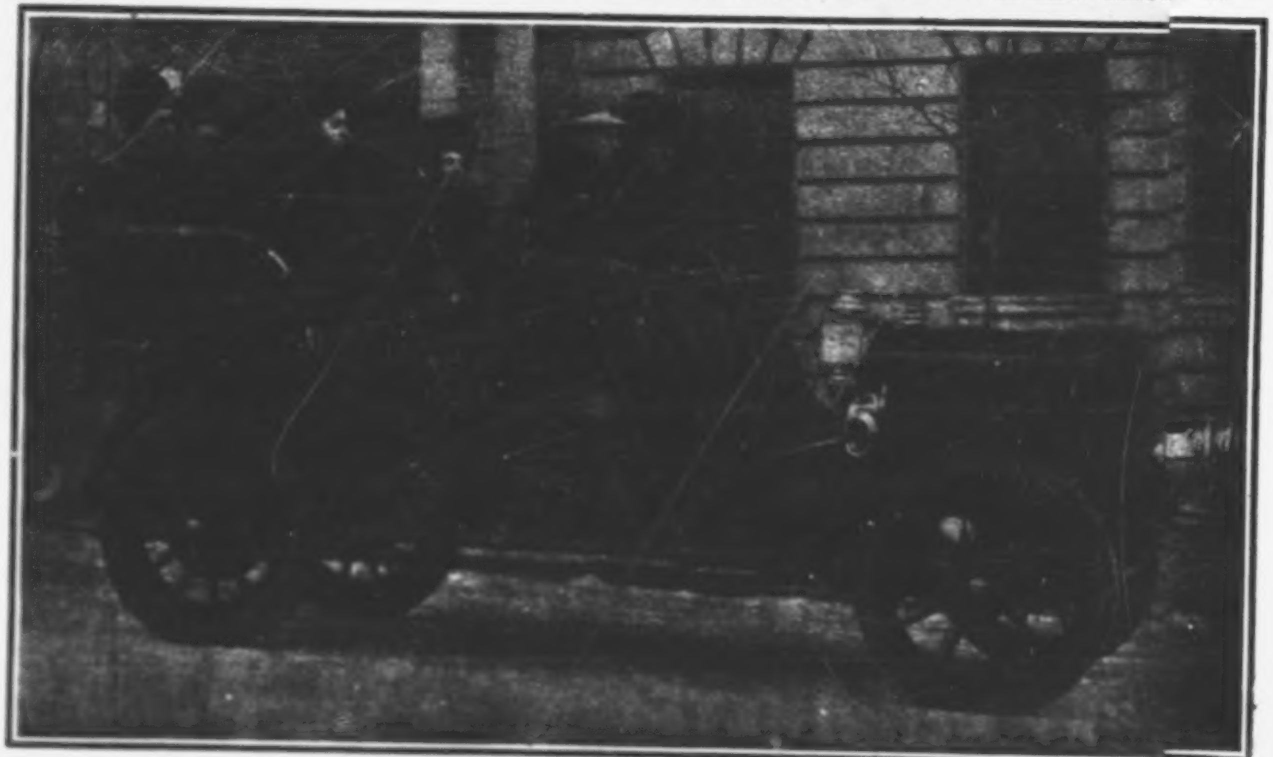


The 20-Horse-Power Aerocar Runabout.

Engine: 4 x 4. 4-cylinder, air-cooled. Transmission: 2-speed progressive type. Clutch: Multiple-disk. Drive: Shaft. Weight: 2,100 pounds. Wheel base: 104 inches. Tires: 28 x 3½.

wer Maxwell Touring Car Which Ran
Without Stopping the Engine.

x 5, double-opposed type, water-cooled. Transmis-
type. Clutch: Multiple disk in gear box. Drive:
pounds. Wheel base: 86 inches. Tires: 30 x 3½.



The New White 30-Horse-Power Steam Touring Car With Pullman Body.

Engine: Compound with cylinders of 3 and 6 inch bore by 4½ inches stroke. Boiler: Flash type maintaining steam pressure constant at 600 pounds. Weight: 3,000 pounds. Wheel base: 115 inches. Tires: Front, 36 x 4; rear, 36 x 4½. The new method of closing the space between the fenders and running board and the body by means of patent leather strips secured by lacing or buttons, is shown in the photograph. The new type of square oil lamps are also to be noted.

SOME LEADING TYPES OF 1907 AUTOMOBILES.

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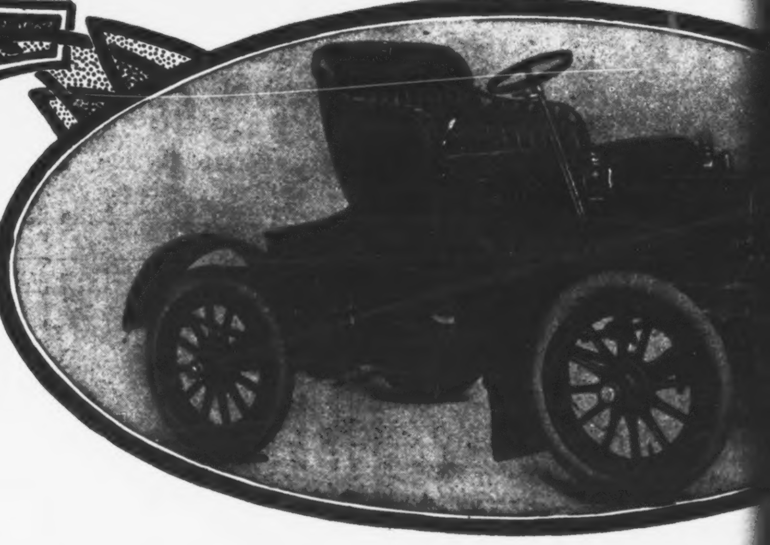
What You Get When You Get a CADILLAC



You get a car as scientifically designed and as perfectly finished as if the reputation of thi greatest automobile establishment in the world, depended upon *that one car*.

This painstaking care dominates to the smallest details of Cadillac construction—in the engine i apparent that the minutely-accurate finish of this vital part has made it a signal achievement in aut bile manufacture.

The Cadillac Runabout (Model K) and Light Touring Car (Model M) are fitted with our wo ful single-cylinder engine, to which the dependabilit remarkably low cost of maintenance of these m are chiefly attributable. By its great power, and hill-climbing ability, this engine has p itself so worthy in thousands of cars d the past four years that it will be us 1907 practically without change—a fact which alone places the serviceableness of these cars beyond question.

Model M, $950

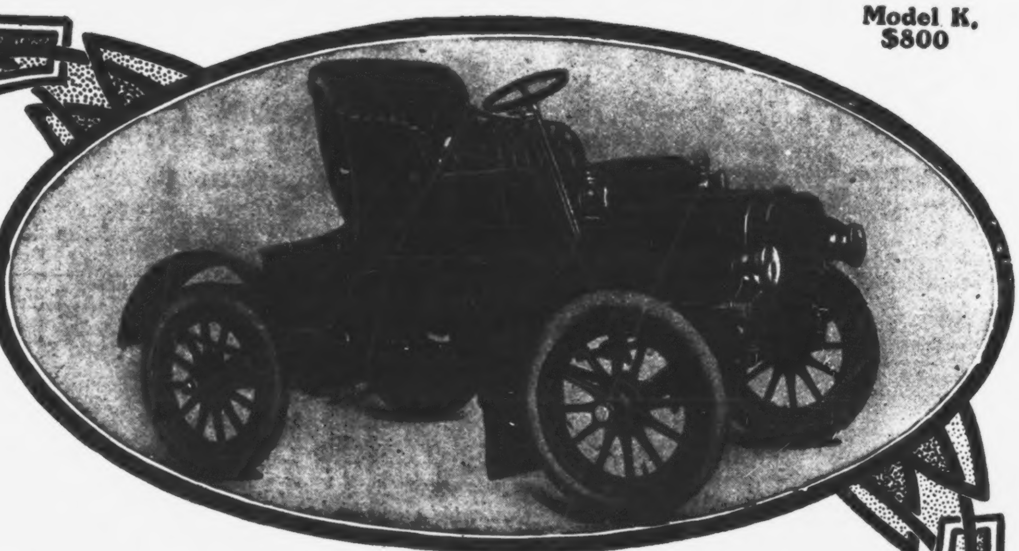
CADILLA

In the four-cylinder models a degree of perfection has been attained which hitherto has been found only in the high-priced foreign cars. In fact, an American-made machine of the mechanical finish that characterizes the Cadillac was scarcely possible until the development of equipment and system so marvelously efficient as those found in the Cadillac factory.

Simplicity is a cardinal virtue with these four-cylinder wonders, a feature which every operator will appreciate. Add to this, thorough dependability— all weather or road conditions, ease of control truly surprising, comfort of riding not surpassed in an [illegible]

VERTISEMENT

Model K.
$800



What You Get When You Get a CADILLAC

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el M.
50

CADILLAC

Model G.
$2,000

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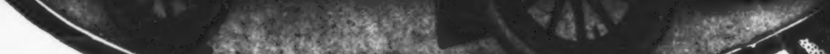

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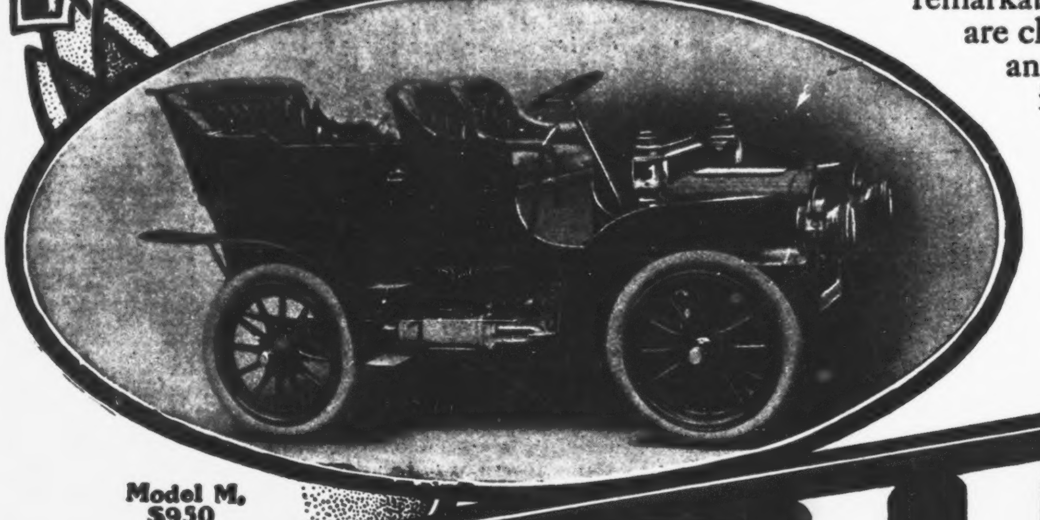
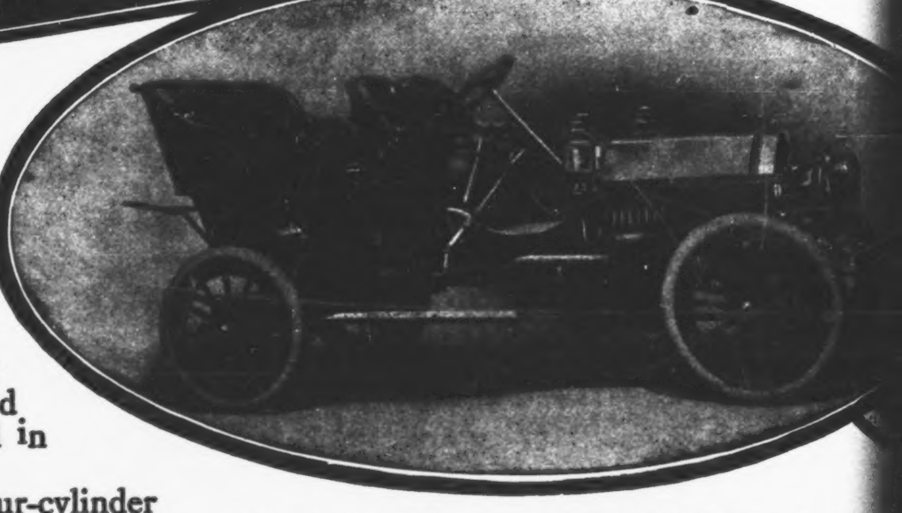


Model M, $950

CADILLAC



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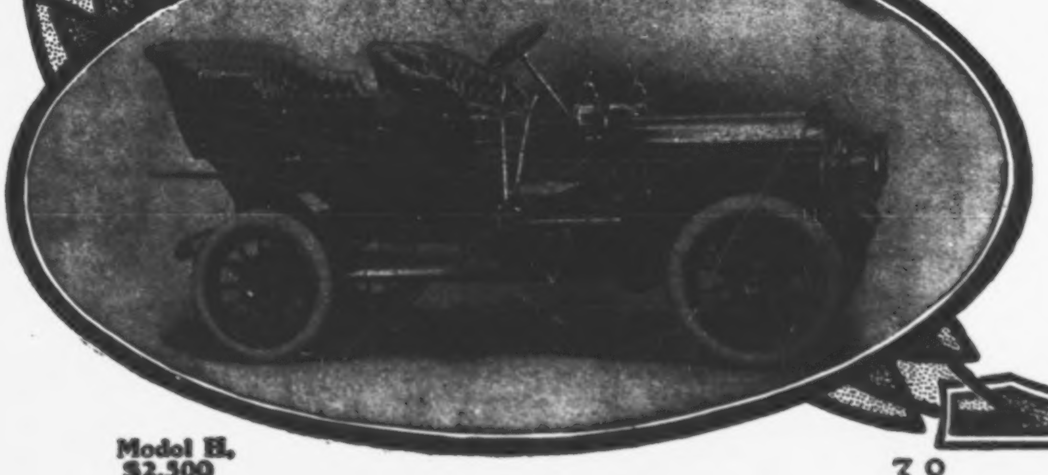
Be sure to get a demonstration from your nearest dealer—you will be surprised how great are the possibilities of the "Car that Climbs."



Model H, $2,500

Model H, 30 h.p. 4-cylinder Touring Car, $2,500
(Described in Catalogue H N)

Model G, 20 h.p. 4-cylinder Touring Car, $2,000
(Described in Catalogue G N)

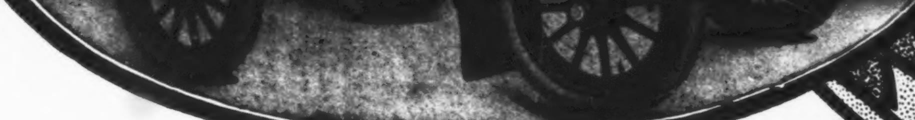
Model M, 10 h.p. 4-passenger car straight line or Victoria body **$950**
(Described in Catalogue M N)

Model K, 10 h.p. Runabout $800
(Described in Catalogue M N)

All prices F. O. B. Detroit—Lamps not included

Send for special Catalog of car in which you are interested, as above designated

CADILLAC MOTOR CAR CO.
DETROIT, MICH.
Member A. L. A. M.



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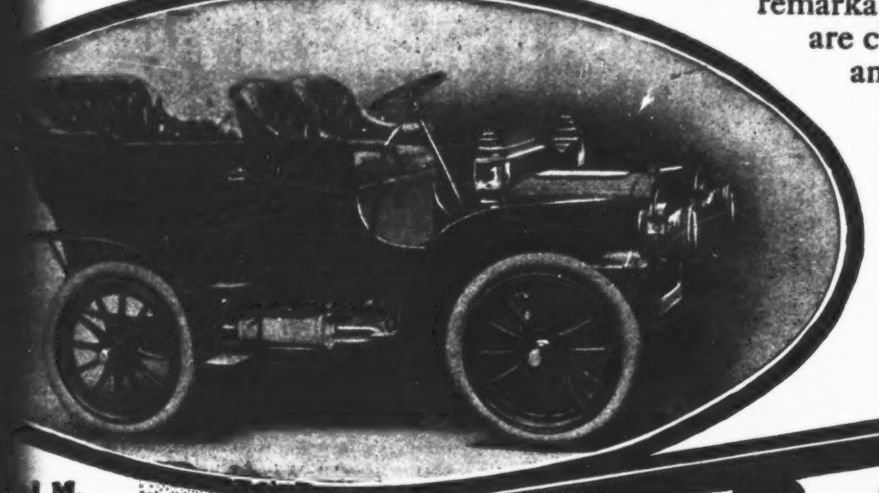

M,
50

CADILLAC

**Model G,
$2,000**

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Model H, 30 h.p. 4-cylinder Touring Car, (Described in Catalogue H N)	**$2,500**
Model G, 20 h. p. 4-cylinder Touring Car, (Described in Catalogue G N)	**$2,000**
Model M, 10 h.p. 4-passenger car straight line or Victoria body (Described in Catalogue M N)	**$950**
Model K, 10 h.p. Runabout . . . . . (Described in Catalogue M N)	**$800**

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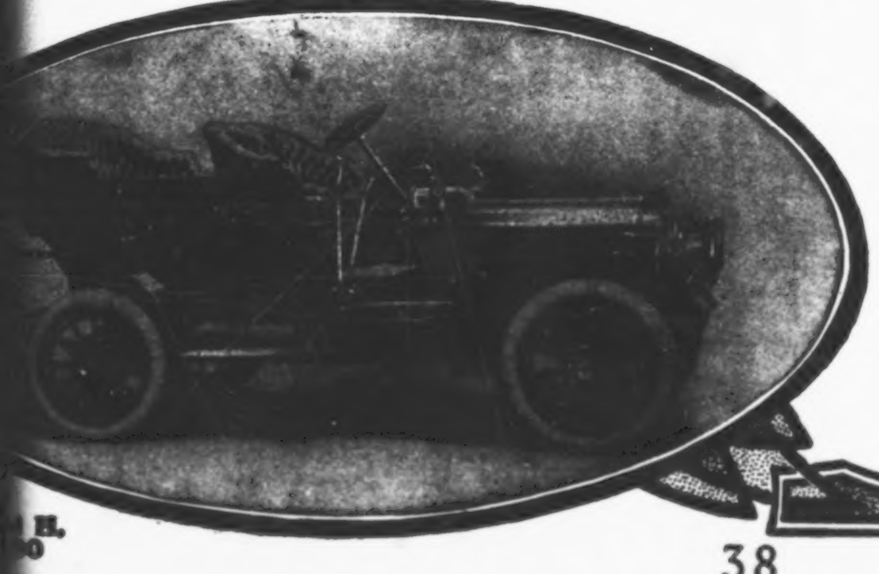

H.
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ADVERTISEMENT

Columbia

The Smartest Car Ever Put on the Market.

Mark XLIX
40-45 H. P. $4500

SMARTNESS of style—the most graceful outlines and proportions—have received the same expert attention in the Columbia Gasoline Cars for 1907, as strength and perfection of mechanism.

They are the cars for those who demand artistic appearance as well as reliability, smoothness of operation, and speed.

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In 1907 Columbia four-cylinder cars, both 40-45 H. P. and 24-28 H. P. models, Chrome Nickel Steel will be found *in fact* as well as in name. Practically all the genuine crucible-made Chrome Nickel Steel produced in America for Automobile use was secured for the Columbia Cars. The use of this, the toughest steel yet made, places the two Columbia models in the lead of American cars, and in the class with the very best of European manufacture.

Write for separate catalogues of Columbia Cars, Columbia Electric Carriages, and Columbia Electric Commercial Vehicles. A demonstration may be arranged by appointment with our nearest representative.

ELECTRIC VEHICLE COMPANY
HARTFORD, CONN.

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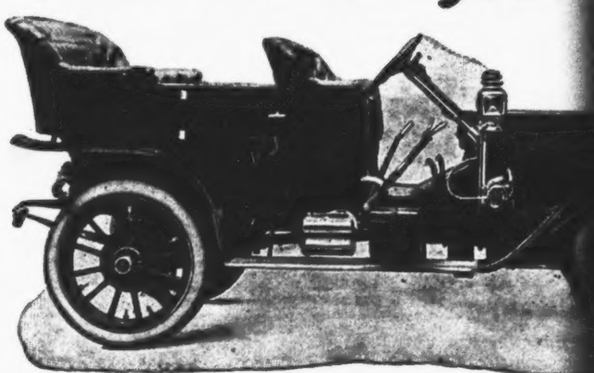

Model N, 30-35 H. P., $2,500

Selective type sliding gear transmission,
rear axle.
Three speeds forward and reverse, dir
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All working parts easily accessible.
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Only the best materials procurable.

Other Waynes are Model R, 50 H. P.,
touring car with Pullman body, selling at $3,500,
35 H. P., five passenger car, selling at $2,500—bo

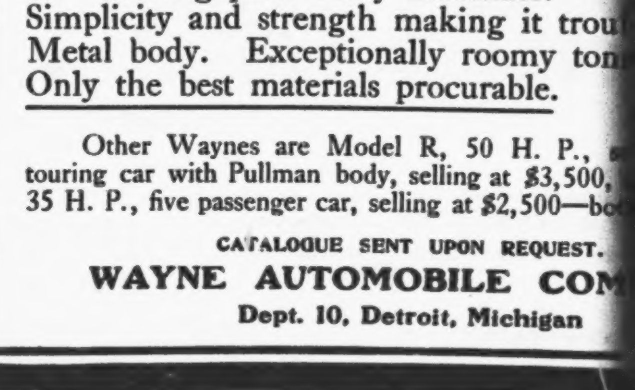
CATALOGUE SENT UPON REQUEST.

WAYNE AUTOMOBILE COM
Dept. 10, Detroit, Michigan

1907 DEERE

TYPE "B"

24-26 H. P



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PAGO

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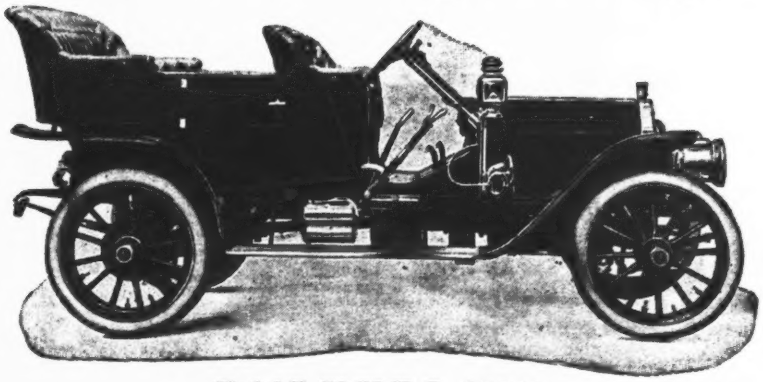
Wayne

"The car that takes you through"



Model N, 30-35 H. P., $2,500

Selective type sliding gear transmission, located on rear axle.
Three speeds forward and reverse, direct drive on high speed.
All working parts easily accessible.
Simplicity and strength making it trouble proof.
Metal body. Exceptionally roomy tonneau.
Only the best materials procurable.

Other Waynes are Model R, 50 H. P., seven passenger touring car with Pullman body, selling at $3,500, and Model K, 35 H. P., five passenger car, selling at $2,500—both great values.

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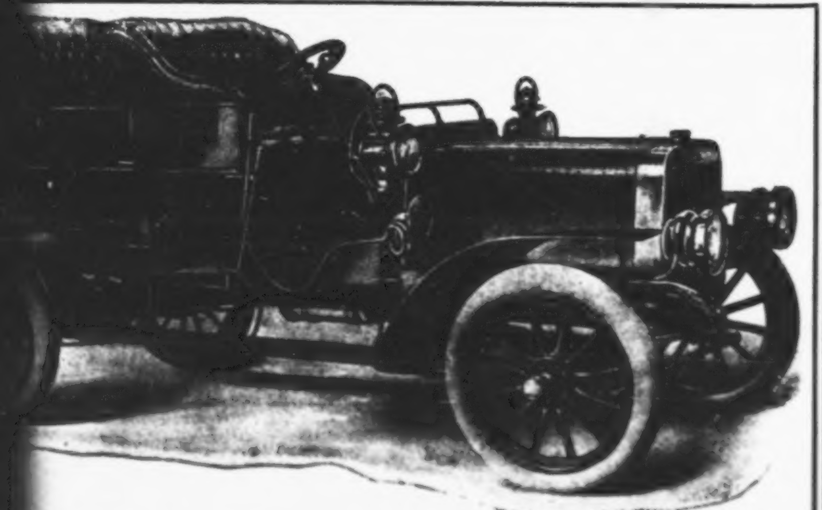
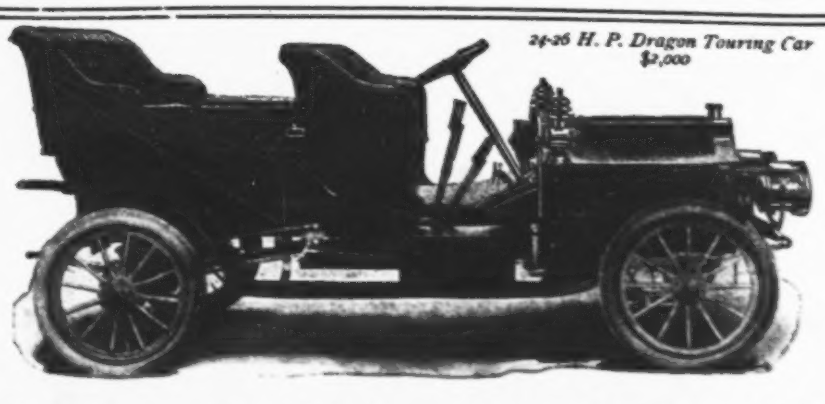
WAYNE AUTOMOBILE COMPANY
Dept. 10, Detroit, Michigan



07 DEERE

TYPE "B"



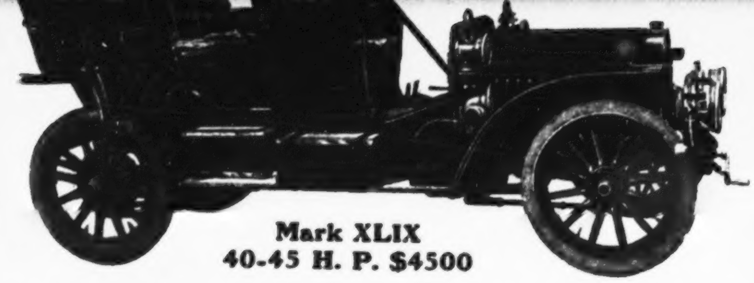
24-26 H. P. Dragon Touring Car
$2,000

The Actual Ability of an Automobile

"28-30 H. P. Motor" actually means very little, and is a misleading statement.

To determine the actual hill-climbing and speeding ability of any car, you must first find how much horse-power is actually delivered to the rear wheels, then find out the weight of the car when filled to its full passenger capacity, and calculate the ratio of actual horse-power to gross weight of car.

DRAGON



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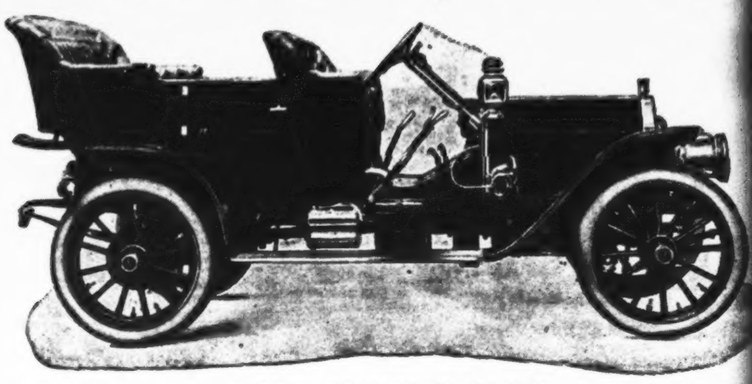

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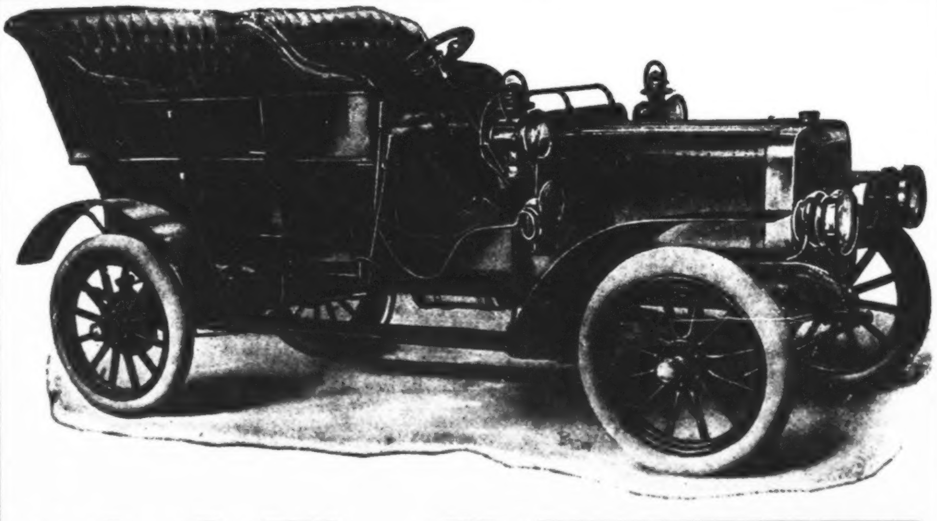


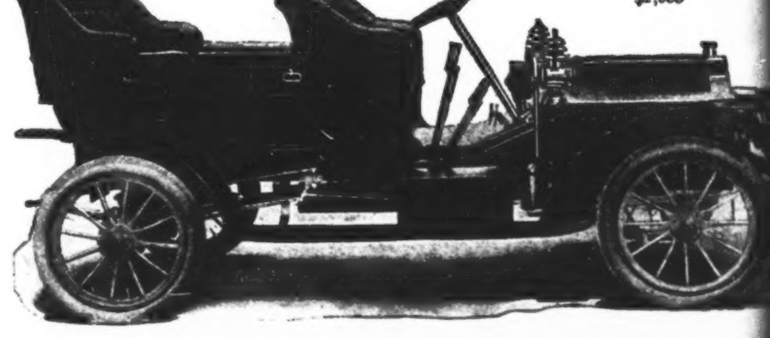
1907 DEERE

TYPE "B"

SPECIFICATIONS

MOTOR. Four-cylinder, water cooled. Cylinders 4 x 5 H. P. 25, 40.
TRANSMISSION. Selective, no gears slide, roller bearing.
REAR AXLE. Clutch driven, floating type.
FRONT AXLE. I-Beam section.
FRAME. Pressed steel, with subframe.
SPRINGS Elliptic scroll, rear 38 inches long, semi-elliptic front 40 inches long.
LUBRICATION. Crandall, six feed mechanical oiler.
SHAFT DRIVE. With bevel gears.
IGNITION. Storage battery, six dry cells.
BRAKES. Exterior and interior brakes on rear hubs, foot pedal and side lever respectively.
BODY. Wood, straight line design, seats four comfortably.
TIRES. 34 inches by four inches.
GASOLINE. Eighteen-gallon tank under front seat, glass gauge.
WATER. Capacity, four gallons.
MUFFLER. Free, silent with no back pressure.
CARBURETOR. Float feed type.
CLUTCH. Disc clutch, metal to metal, roller bearing, carried in flywheel.
WHEEL BASE. One hundred and six inches.
CLEARANCE. Nine inches.
COLORS. Seal brown, standard, any color on time orders.
EQUIPMENT. Three oil lamps, two gas lamps, generator, clock, dragon horn, kit of tools; in fact, car ready for road use.
WEIGHT. Twenty-three hundred and fifty pounds.
PRICE. $2,500, f. o. b. factory.
TOP Extra $125 for stock top.

Deere-Clark Motor Car Co., 119 Blackhawk Avenue
MOLINE, ILL.



24-26 H. P. Dragon Touring
$2,000

The Actual Ability of an Automo

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To determine the actual hill-climbing and speeding ability of any car, you mus
how much horse-power is actually delivered to the rear wheels, then find out the wei
car when filled to its full passenger cap
calculate the ratio of actual horse-power
weight of car.

DRAGON

The Dragon has 24-26 H P. actually delivered at rear-wheels, the car empty weig
it holds five passengers which if they average 150 lbs. apiece, adds 750 lbs, making gr
of car filled 2,600 lbs. Taking the horse-power as 26, we find that the Dragon has an ac
power for every 100 lbs. of weight with car filled to capacity. This is the highest rat
to weight, or the lowest ratio of weight to power found in any five-passenger tou
equal motor capacity.

Hence we claim that the Dragon has greater hill-climbing and speeding ability tha
car of same horse-power and passenger capacity. Our claim is based on the same pr
a light passenger train can be hauled faster by a passenger locomotive than a hea
train by a mammoth "camel back."

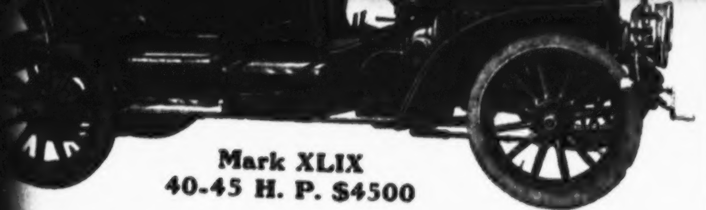
WRITE FOR BOOKLET TO "DEPT. A."

THE DRAGON AUTOMOBILE CO., 30th, 31st and C
PHILADE

Member A. M. C. M. A.

New England B
117 Massachusetts Av

24-26 H. P. Dragon Runabout,
$2,000.



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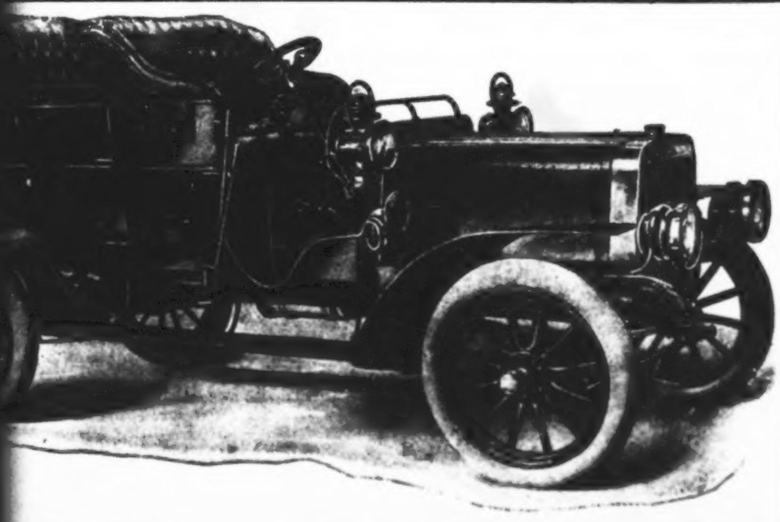

07 DEERE

TYPE "B"

SPECIFICATIONS

Four-cylinder, water cooled. Cylinders 4 x 5 H. P. 25, 40.
SSION. Selective, no gears slide, roller bearing.
LE. Clutch driven, floating type.
LE. I-Beam section.
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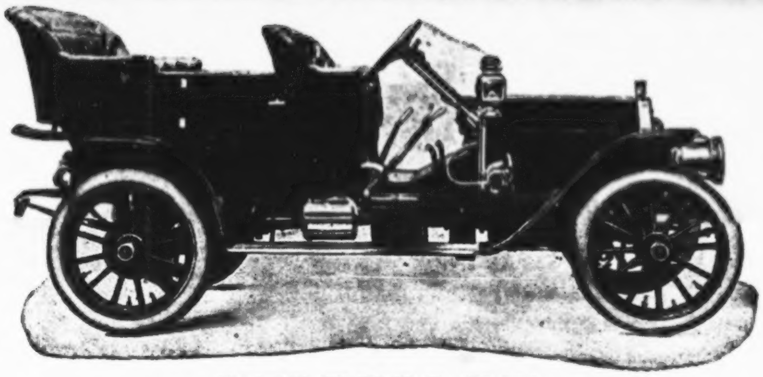
Elliptic scroll, rear 38 inches long, semi-elliptic front 40 inches long.
TION. Crandall, six feed mechanical oiler.
RIVE. With bevel gears.
Storage battery, six dry cells.
Exterior and interior brakes on rear hubs, foot pedal and side lever vely.
od, straight line design, seats four comfortably.
inches by four inches.
Eighteen-gallon tank under front seat, glass gauge.
Capacity, four gallons.
Free, silent with no back pressure.
TOR. Float feed type.
Disc clutch, metal to metal, roller bearing, carried in flywheel.
ASE. One hundred and six inches.
CE. Nine inches.
Seal brown, standard, any color on time orders.
T. Three oil lamps, two gas lamps, generator, clock, dragon horn, ols; in fact, car ready for road use.
Twenty-three hundred and fifty pounds.
500, f. o. b. factory.
$125 for stock top.

lark Motor Car Co., 119 Blackhawk Avenue
MOLINE, ILL.



Model N, 30-35 H. P., $2,500

Selective type sliding gear transmission, located on rear axle.
Three speeds forward and reverse, direct drive on high speed.
All working parts easily accessible.
Simplicity and strength making it trouble proof.
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Dept. 10, Detroit, Michigan

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To determine the actual hill-climbing and speeding ability of any car, you must first find how much horse-power is actually delivered to the rear wheels, then find out the weight of the car when filled to its full passenger capacity, and calculate the ratio of actual horse-power to gross weight of car.

DRAGON

The Dragon has 24-26 H. P. actually delivered at rear-wheels, the car empty weighs 1850 lbs., it holds five passengers which if they average 150 lbs. apiece, adds 750 lbs., making gross weight of car filled 2,600 lbs. Taking the horse-power as 26, we find that the Dragon has an actual horse power for every 100 lbs. of weight with car filled to capacity. This is the highest ratio of power to weight, or the lowest ratio of weight to power found in any five-passenger touring car of equal motor capacity.

Hence we claim that the Dragon has greater hill-climbing and speeding ability than any other car of same horse-power and passenger capacity. Our claim is based on the same principle that a light passenger train can be hauled faster by a passenger locomotive than a heavier freight train by a mammoth "camel back."

WRITE FOR BOOKLET TO "DEPT. A."

THE DRAGON AUTOMOBILE CO., 30th, 31st and Chestnut Streets
PHILADELPHIA

Member A. M. C. M. A.

New England Branch
117 Massachusetts Avenue, Boston

24-26 H. P. Dragon Runabout,
$2,000.

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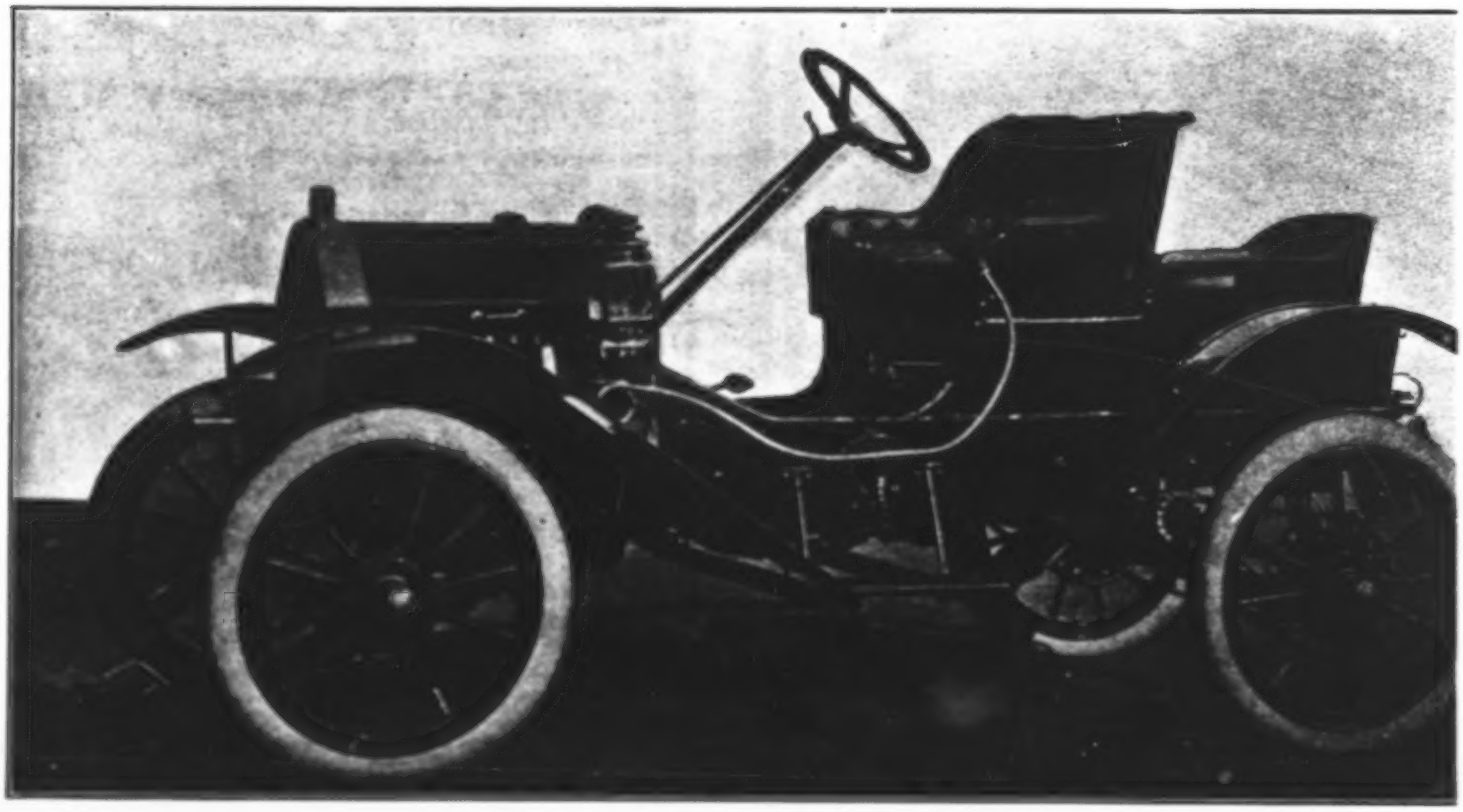
Everyman's Car at

1910 BRUSH $485^{0}



RUMBLE SEAT AND TOOL BOX $20.00 EXTRA

Everyman's Car—

- Merchants
- Physicians
- Salesmen
- Corporations
- Contractors
- Farmers
- Clubmen
- Suburbanites

The Young Folks—

The Brush knows no class; there is no limit to its use-

Think of it—$485 for the best-built, mo proven, easiest riding, most economi small automobile in the world!

The New Brush Runabout not only outclasses all small cars, but is far ahead of its own previous high standard.

Even though we have learned the lessons all manufacturers have to learn by experience—even though we have manufacturing facilities as nearly perfect as money and brains can make them—still we could not build a car of the quality of the 1910 Brush if we merely imitated the big cars with all their complicated parts and all parts necessarily smaller and weaker.

Here's where the genius of the designer counts.

The Brush has always been and still is the only real Runabout built in America.

The new 1910 Brush is not a designer's dream but the result of years of experience and a knowledge acquired by manufacturing 3,000 Brushes that are in daily use. It is a car which with one chassis adapts itself perfectly by change of bodies to a hundred different uses.

It is a car new in power, smoothness, speed and looks but built on proven principles by an organization already perfected.

The Brush has the fewest possible parts but they are of sufficient size and strength to stand the hardest knocks.

Simplicity makes it
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The most wonderful
Car construction in years
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6 inches; more grace
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universal coupling-shaft
commutator; multiple
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In our magnificent ne
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READ THE SPECIFICATIO

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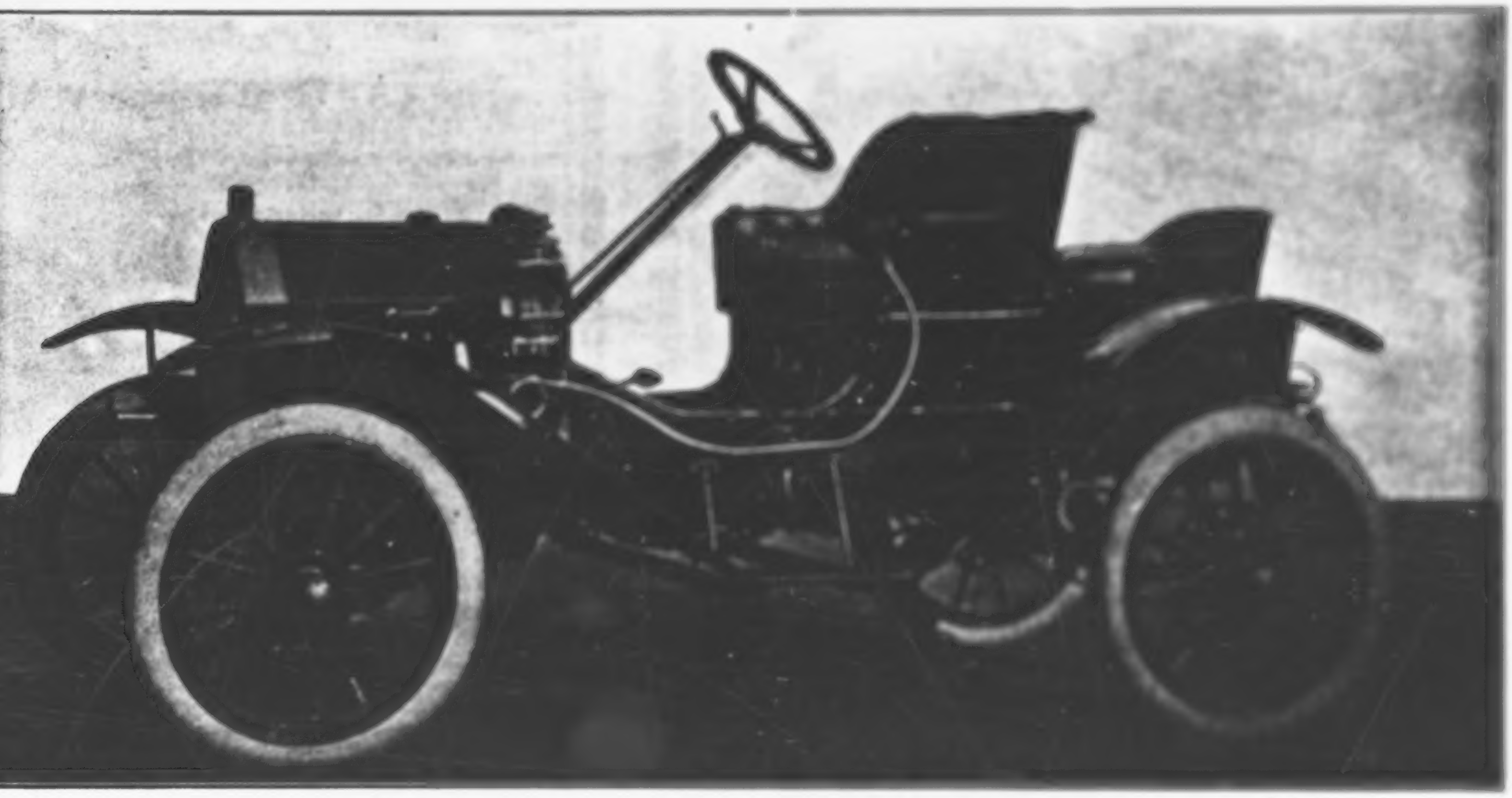
1910 BRUSH $\$485^{\underline{00}}$



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Simplicity makes it possible to build the car right and still sell it at this wonderful price.

As for reliability there is no comparison between the Brush and any of the small imitations of large multi-cylinder cars.

With the new Brush you get single-cylinder simplicity, reliability, light weight, low gasoline and oil consumption, low tire expense with four-cylinder power and smoothness.

Its new balanced motor runs as quietly as a four-cylinder and is as flexible. Its power is astonishing.

The most wonderful improvement in Motor Car construction in years.

While the balanced motor is the most remarkable feature of the 1910 Brush, we have made numerous other improvements and refinements.

Here are some of them: wheel-base lengthened 6 inches; more graceful and rakish lines; Mercedes type radiator; new selective control; universal coupling-shaft; improved dust-proof commutator; multiple disc low and reverse clutches; transmission control levers entirely housed and oil-tight; more quiet muffler.

In our magnificent new plant we make every part of the Brush except the wheels, tires and electric equipment. The Brush buyer pays no middleman's or parts-maker's profit.

READ THE SPECIFICATIONS

RUMBLE SEAT AND TOOL BOX $20.00 EXTRA

Everyman's Car—

Merchants
Physicians
Salesmen
Corporations
Contractors
Farmers
Clubmen
Suburbanites

The Young Folks—

**The Brush knows no class;
here is no limit to its use-
ulness. A tried, proven
utomobile for less than
he cost of a good horse
nd buggy.**

MAIL THIS COUPON TODAY

RUSH RUNABOUT CO. Sc. Am.
167 Baltimore Ave., Detroit, Mich.

Please send me copy of the new Brush Catalog.

Name..
Address..
City...
State...

Think of it—$485 for the best-built, most thorou proven, easiest riding, most economical, hanc small automobile in the world!

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In our magnificent new plant we make
part of the Brush except the wheels, tir
electric equipment. The Brush buyer p
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READ THE SPECIFICATIONS

Motor—10 H. P., balanced single cylinder, four-cycle, vertical, 4" x 5", water cooled; located in front under hood; every part instantly accessible; three point suspension.

Balancing—After balancing by the usual counterweights, one extra loaded balance gear, driven by a crankshaft gear, is applied, the result of which is to take out all of the vibration due to reciprocating weights and in addition most (or at least all) of the torque vibration—theoretically in better balance than a four-cylinder motor.

Transmission—Internal gear type, perfectly quiet; entirely enclosed and absolutely oil tight.

Cooling—Mercedes-type radiator, or Brisco thermo-syphon system, eliminating pump.

Drive—Double side chains to rear wheels.

Control—Single hand lever of selective action for all speeds; [illegible] foot pedal releases clutch without touching the hand lever, and also applies the brake. This clutch release by the foot is one of the best features of the Brush and is found on no other low-priced car.

Steering Gear—Another exceptional feature; [illegible] entirely enclosed and oil tight.

Axles and Frame—Oil-treated, selected wood, ash, hickory and maple; wonderful for strength, durability and lightness.

Springs—Spiral, housed at extreme four corners; absolutely the easiest riding springs on any car and mechanically impossible to break.

Brakes—Internal expanding in rear [illegible]

Wheels—Artillery, with 28" x 3" [illegible]

Wheel Base—80 inches.

Tread—56". For Southern roads 60".

Equipment—Tools, tire kit, 3 oil lamps [illegible]

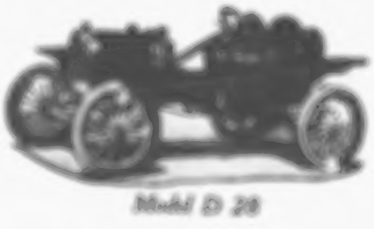
Color—Maroon, except coupe.

Body—Divided seat; trimmed in high-gr[illegible] Platform on rear, as pictured above, with [illegible]

Six special bodies, furnished on order, at [illegible] as follows: rear platform with steel tool compartment, with removable steel deck [illegible] double rumble with wooden tool box; [illegible] coupe.

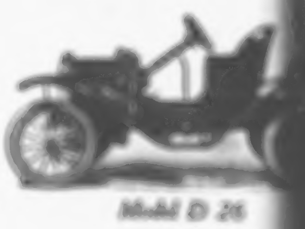
Speed—25 miles an hour, except those [illegible] has special gearing.

BRUSH RUNABOUT COMPANY, 167 BALTIMORE AVE DETROIT, MICHI

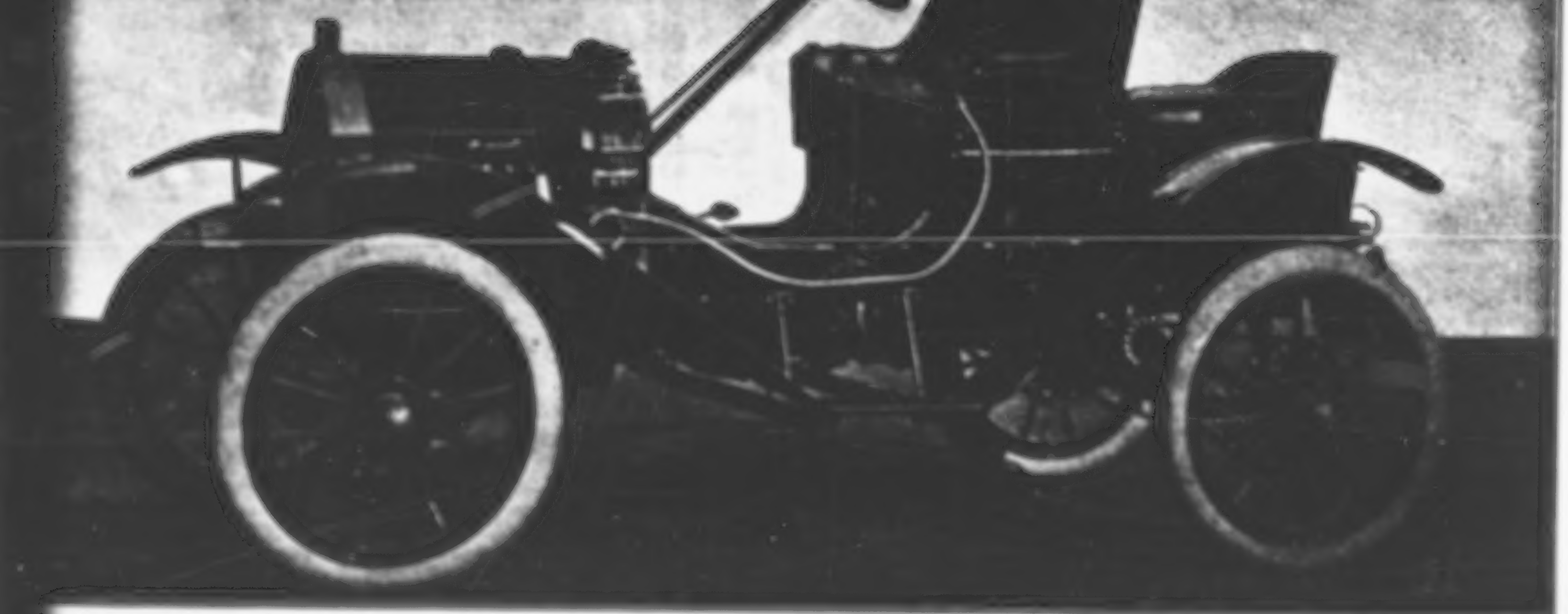


Model D 20

Model D Coupe



Model D 26



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Young Folks—

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Ave., Detroit, Mich.

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READ THE SPECIFICATIONS

Motor—10 H. P., balanced single cylinder, [illegible]

Balancing—[illegible]

Transmission—[illegible]

Cooling—[illegible]

Drive—Double side chains to rear wheels.

Control—Single hand lever of selective action for all speeds; [illegible]

Steering Gear—[illegible]

Axles and Frame—[illegible]

Springs—[illegible]

Brakes—Internal expanding in rear sprocket hubs.

Wheels—Artillery, with 28" x 3" pneumatic tires.

Wheel Base—80 inches.

Tread—56". For Southern trade 60".

Equipment—Tools, tire kit, 3 oil lamps, horn.

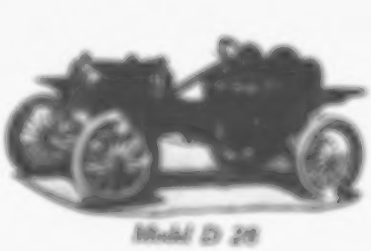
Color—Maroon, except coupe.

Body—[illegible]

[illegible]

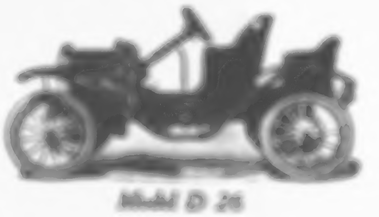
Speed—[illegible]

BRUSH RUNABOUT COMPANY, 167 BALTIMORE AVENUE DETROIT, MICHIGAN



Model D 28

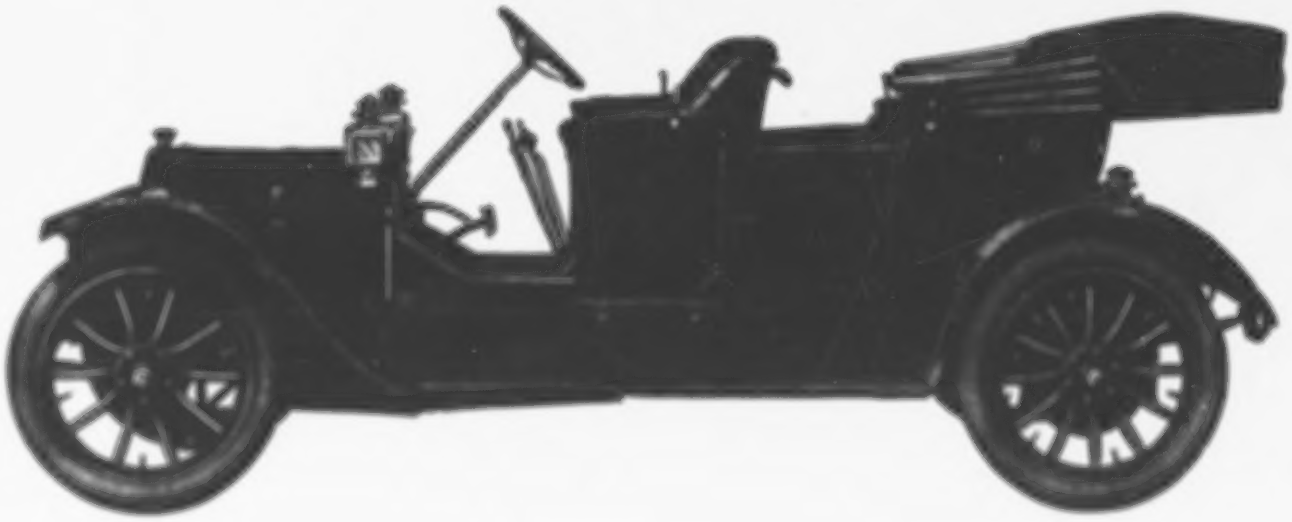
Model D Coupe



Model D 26

ADVERTISEMENT

THE WHITE GASOLINE C
is in a class by itself



If you plan to buy a gasoline car, why not get the
latest construction? You can find it only in the W
[illegible]
or in the 1910 foreign cars at double the White p

The White gasoline car is at least one year ahead of any other American-built machine. Some of the advanced features of the White, which are not yet found in any other American car are:

"Long stroke" engine
No external manifolds
Heated intake
Water-cooled exhaust

Among the White features which are not found in any other American cars, except those of the highest prices, are:

Four-speed transmission
Imported cylinder casting
Bosch magneto

workmanship make the White g
car by far the most desirable on the r

We venture the prediction th
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progressive American manufacture
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The price of the White gaso
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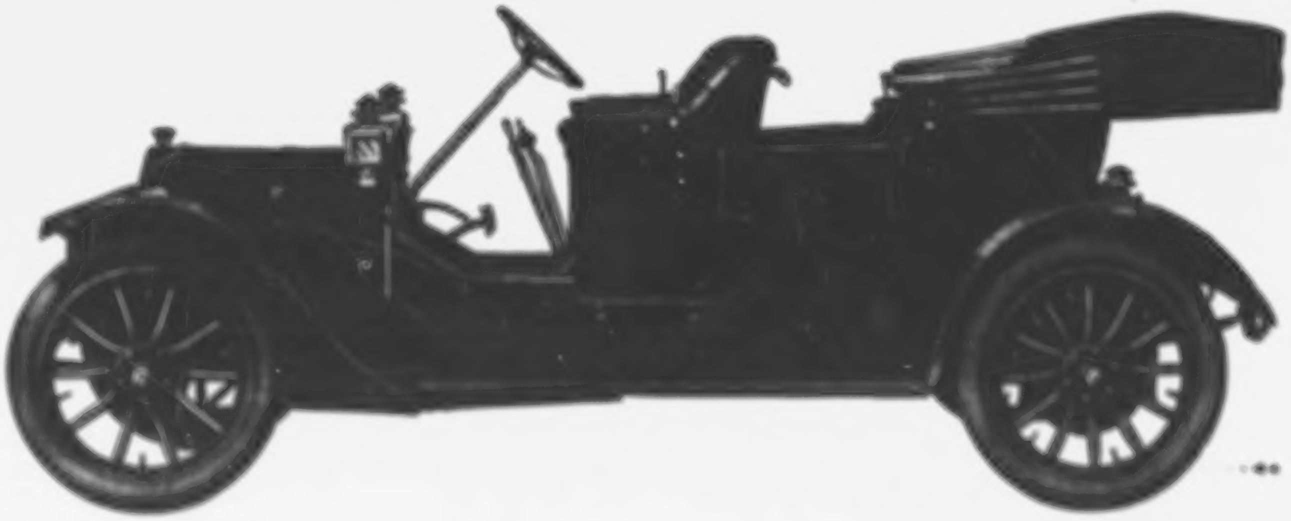
touring car to $3,800 for the
"G-B" landaulet.

Even if you desire a smaller c
larger car than the White, it wi
your advantage to inspect the W
at least to write to us for a cop

VERTISEMENT

THE WHITE GASOLINE CAR
is in a class by itself



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Four-speed transmission
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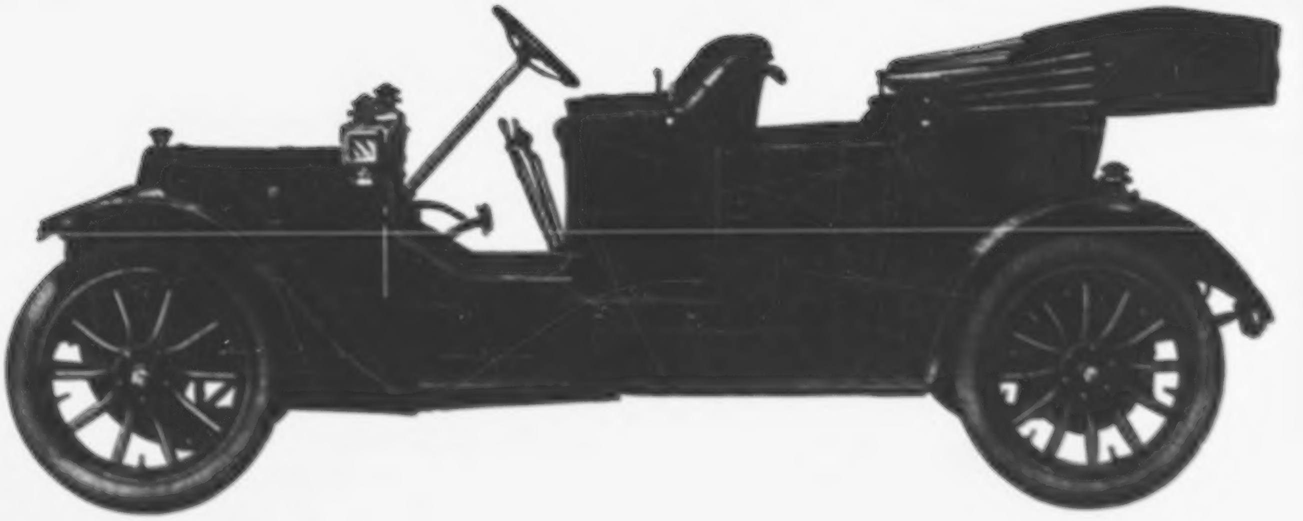
The above features combined in good workmanship make the White gasoline car by far the most desirable on the market.

We venture the prediction that the principal changes which will be made by progressive American manufacturers during the next year or two will be the adoption of the features which are found *now* in the White gasoline car.

The price of the White gasoline car ranges from $2,000 for the Model "G-A" touring car to $3,800 for the Model "G-B" landaulet.

Even if you desire a smaller car or a larger car than the White, it will be to your advantage to inspect the White or at least to write to us for a copy of our catalog, in order that you may inform



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THE WHITE COMPANY

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New York City, Broadway and 62d St.
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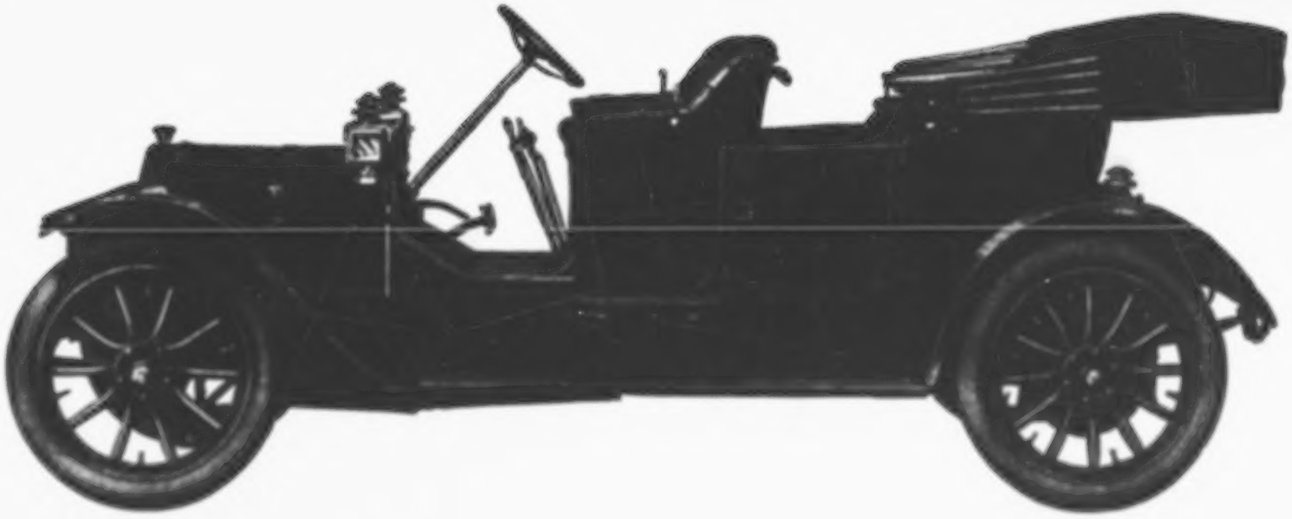
Philadelphia, 629-33 N. Broad St.
Pittsburg, 138-148 Beatty St.
Toronto, 170 King St., West

Chicago, 240 Michigan Av
Atlanta, 120-122 Marietta S
Cleveland, 407 Rockwell Av
San Francisco, Market St.
Van Ness Avenue



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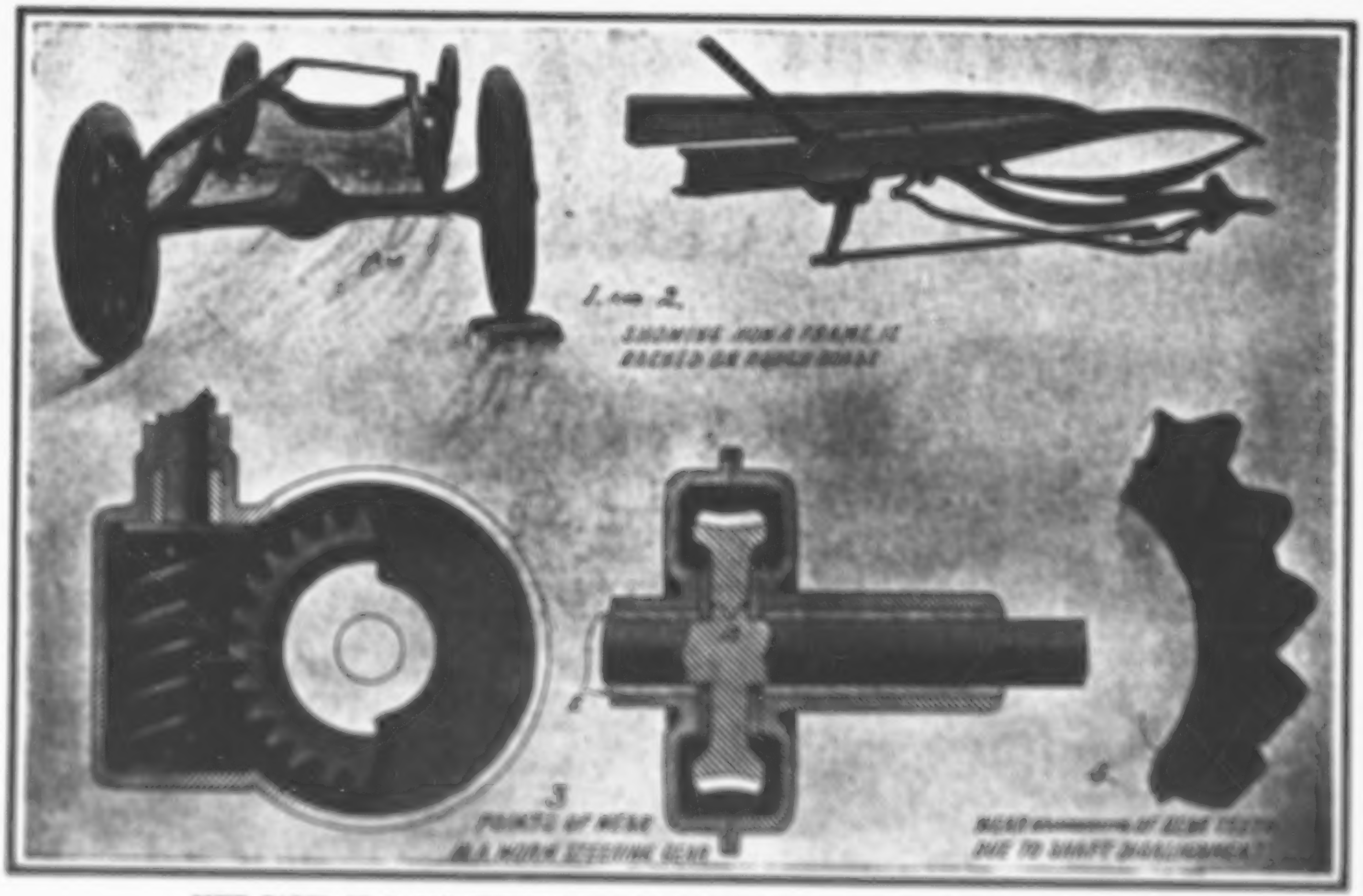
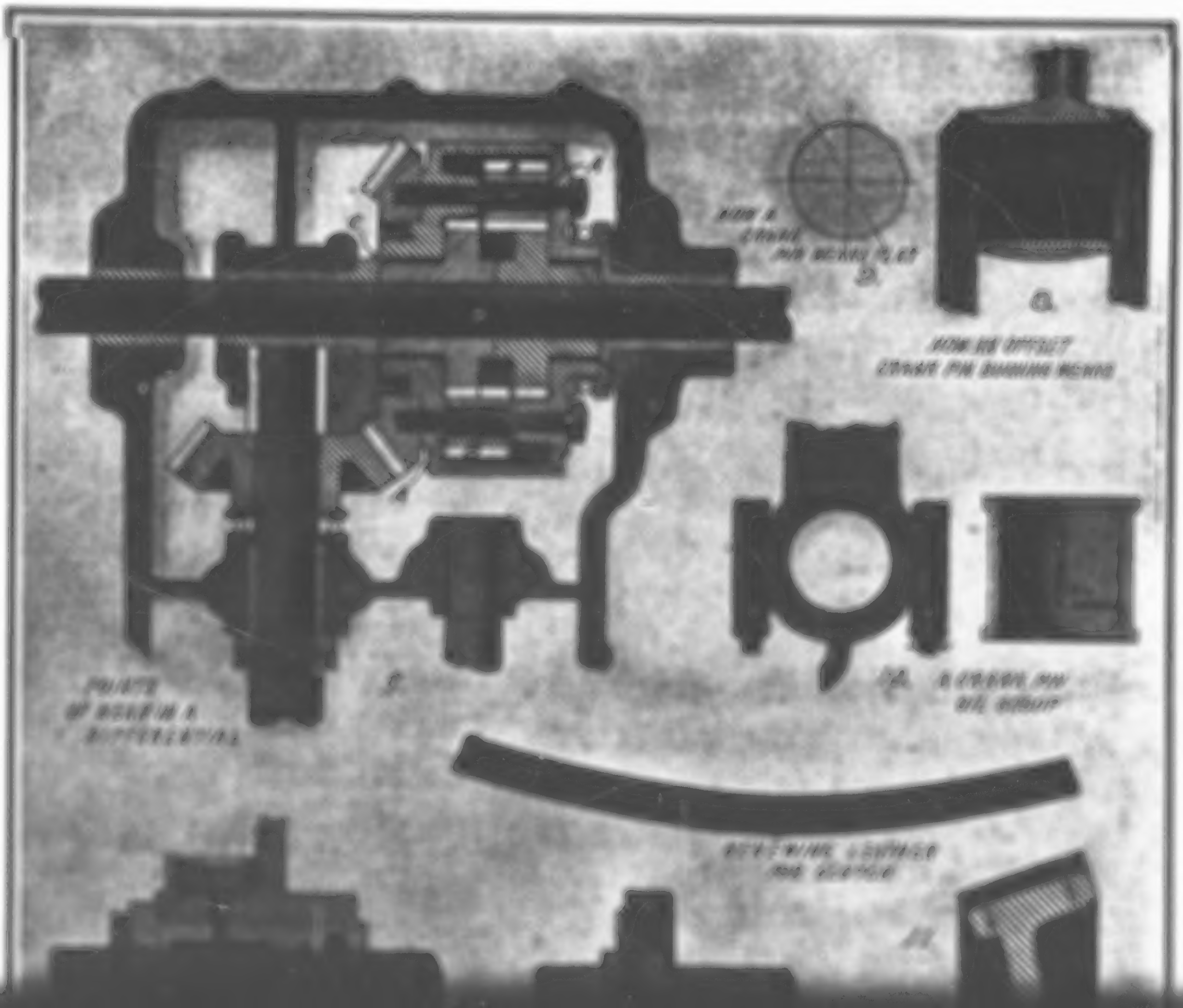
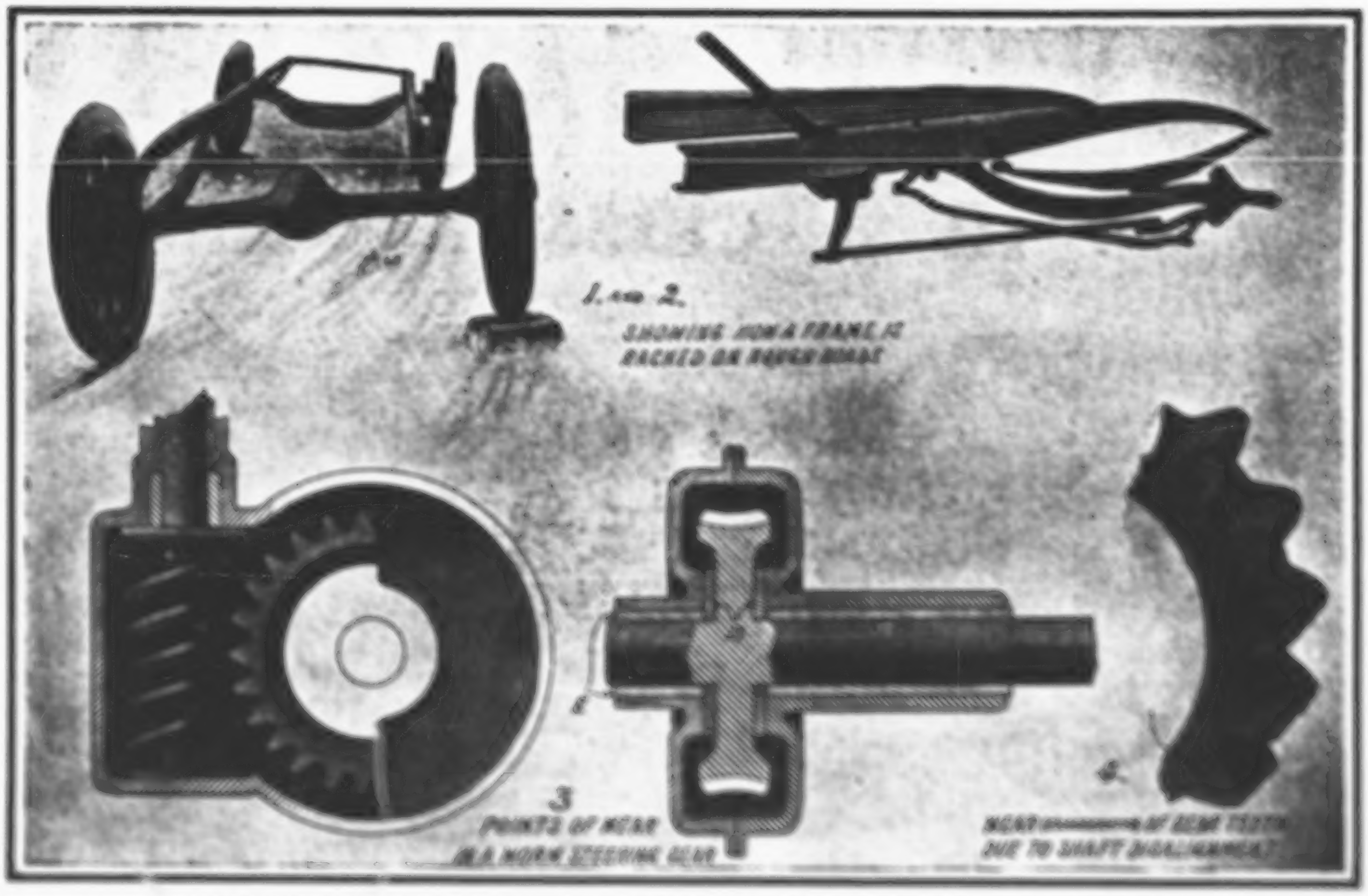
PARTS



SOME PARTS OF A CAR WHICH MUST BE CAREFULLY CONSIDERED IN OVERHAULING.




1 AND 2.
SHOWING HOW A FRAME IS RACKED ON ROUGH ROADS
3
POINTS OF WEAR IN A WORM STEERING GEAR
4.
WEAR OF BEVEL TEETH DUE TO SHAFT DISALIGNMENT

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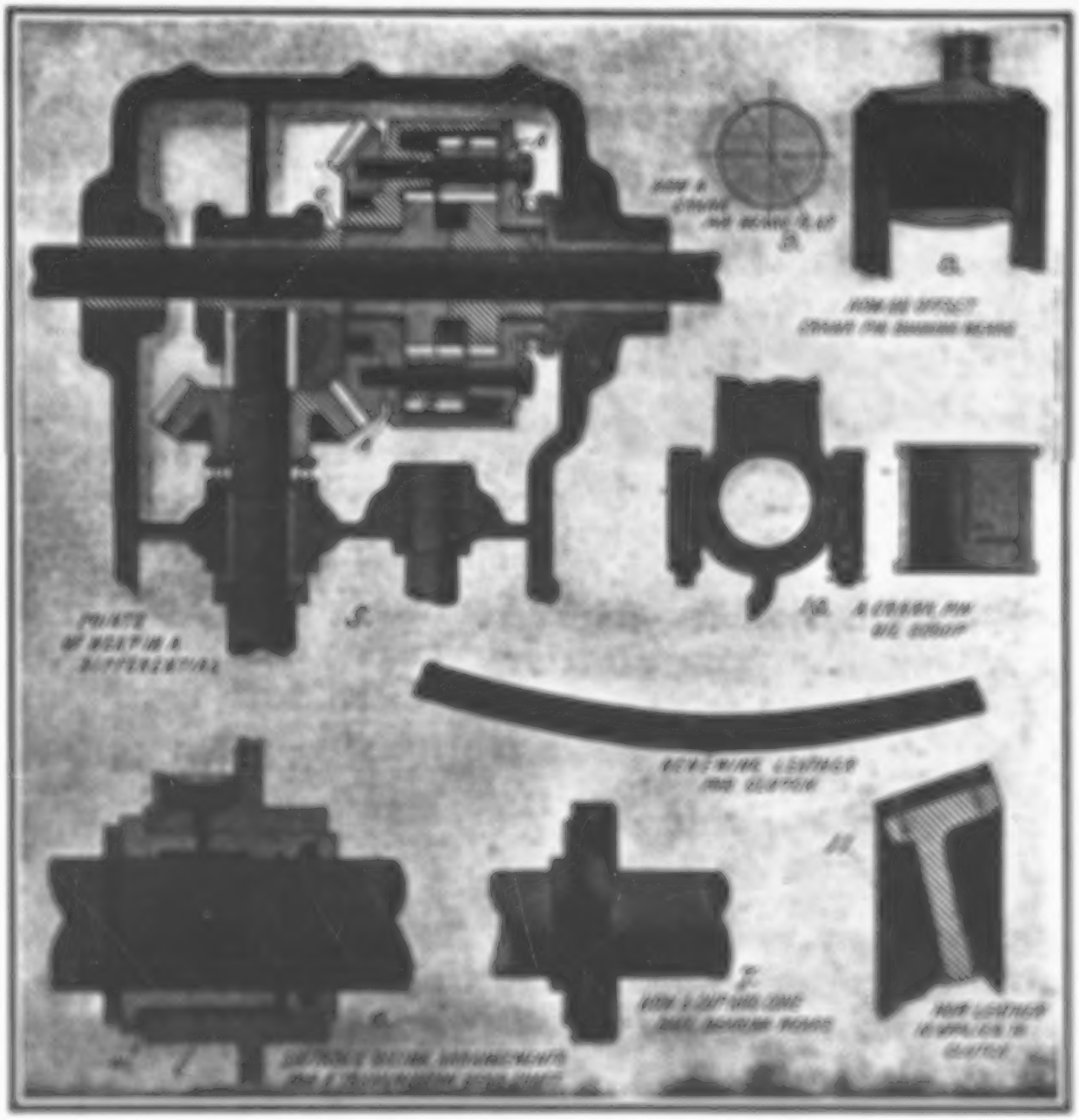
POINTS OF WEAR IN A DIFFERENTIAL
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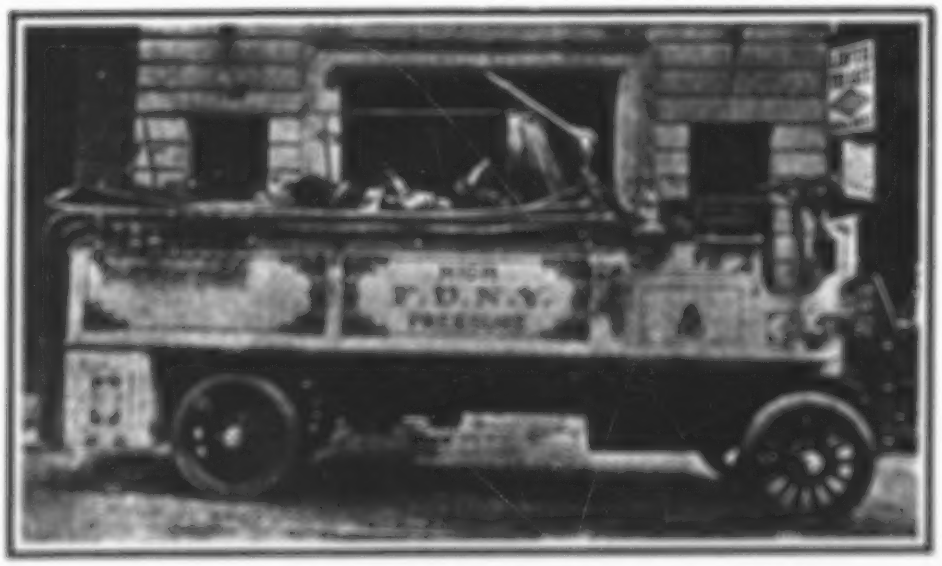
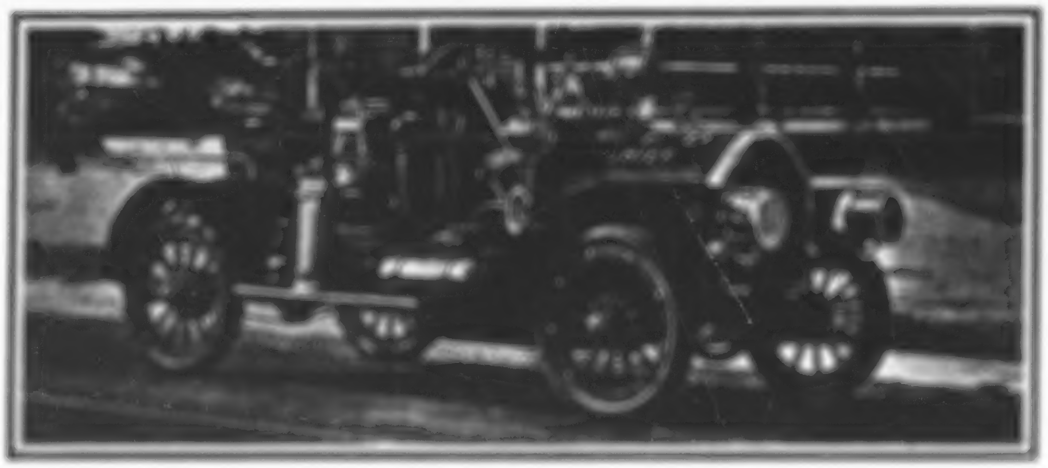
HOW PARTS WEAR IN AN AUTOMOBILE.

FIRE ENGINES



A NEW YORK AUTOMOBILE HIGH-PRESSURE SERVICE WAGON.

AN AUTOMOBILE HOSE CART.



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A COMBINATION TRUCK FOR SMALL COMMUNITIES.

MOTOR-FIRE PUMP AT W

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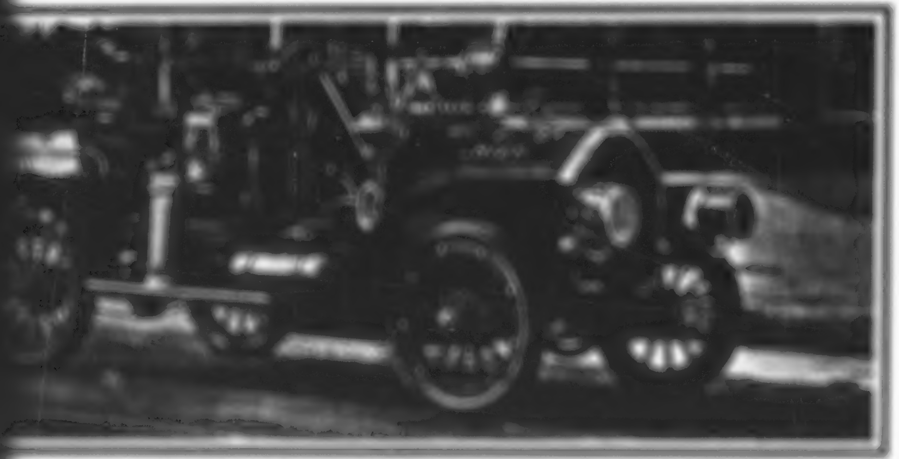
EW YORK AUTOMOBILE HIGH-PRESSURE SERVICE WAGON.

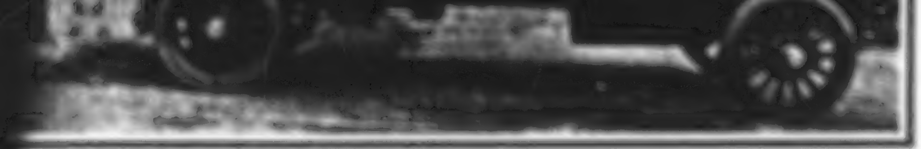
AN AUTOMOBILE HOSE CART.



FIRE CHIEF'S AUTOMOBILE.

MOTOR-FIRE PUMP AT WORK.

A COMBINATION TRUCK FOR SMALL COMMUNITIES.



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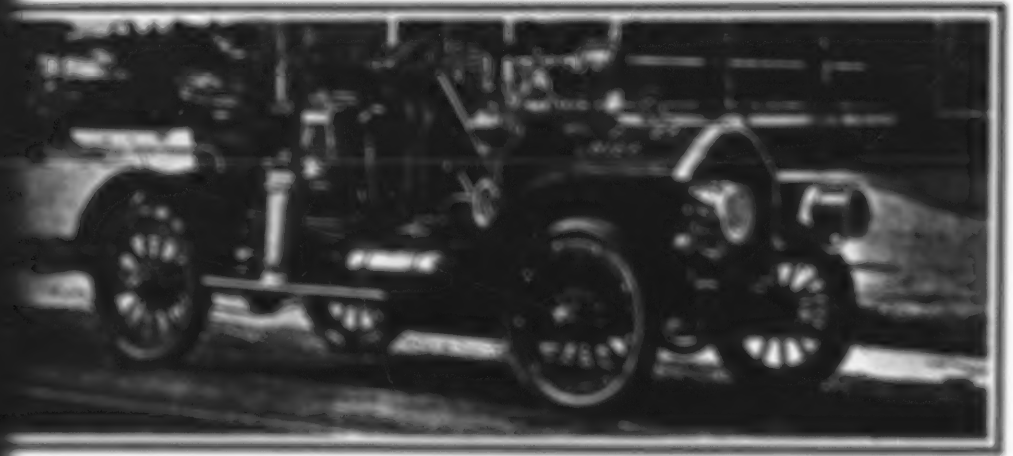

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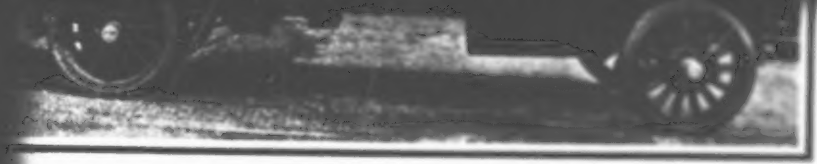
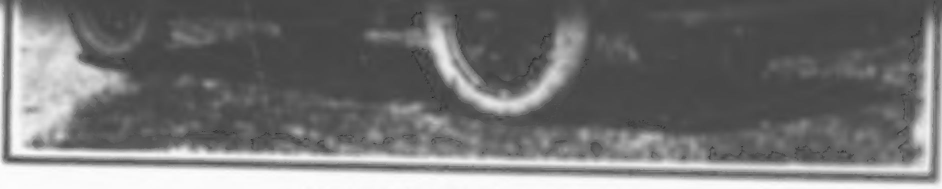
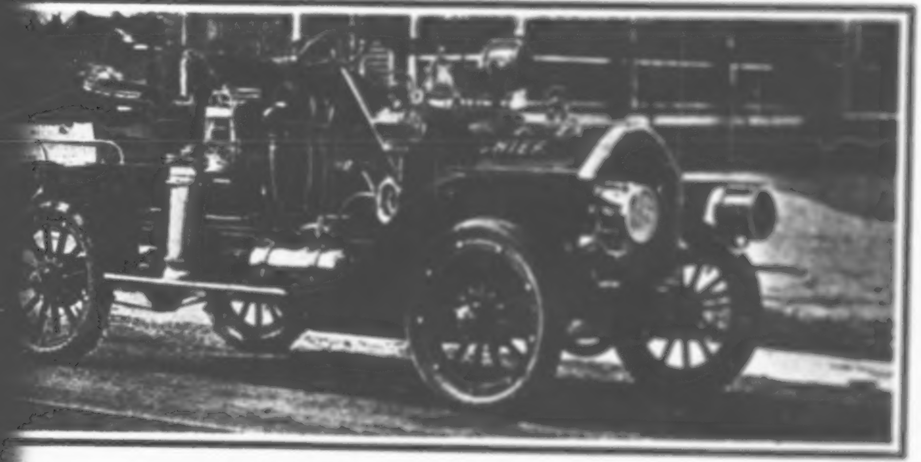


NEW YORK AUTOMOBILE HIGH-PRESSURE SERVICE WAGON.



AN AUTOMOBILE HOSE CART.

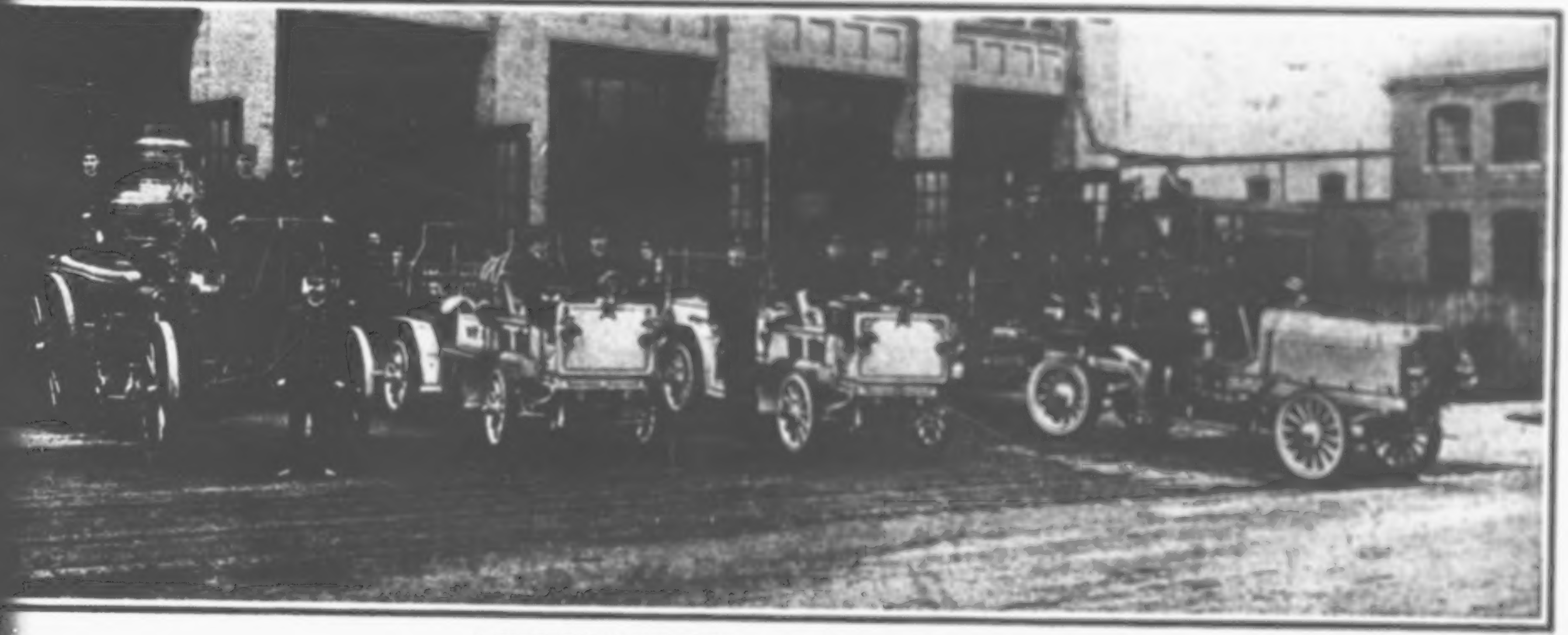


FIRE CHIEF'S AUTOMOBILE.

COMBINATION

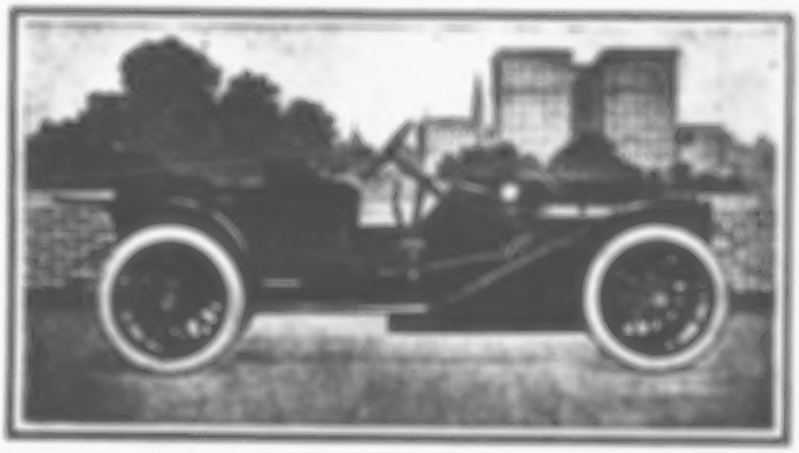
A COMBINATION TRUCK FOR SMALL COMMUNITIES.

MOTOR-FIRE PUMP AT WORK.



A COMPLETE AUTOMOBILE FIRE DEPARTMENT.

CARS



Chalmers-Detroit 40-horse-power pony tonneau.

Cone clutch; four cylinders cast in pairs; bore, [illegible] inches by [illegible] inches stroke; water cooling with honeycomb radiator; jump spark ignition; shaft drive; selective sliding gear transmission. Price, $[illegible].

Cartercar, 35 horse-power.

Motor, bore [illegible] inches by [illegible] inches stroke; four cylinders cast in pairs; low-tension ignition; friction transmission; semi-floating rear axle; chain [illegible] drive; [illegible] control. Price, $[illegible].

Franklin 42-horse-power touring car.

Multiple disk clutch; 6 cylinders cast separately; bore, [illegible] inches by [illegible] inches stroke; air cooled; jump spark ignition; shaft drive; selective sliding gear transmission. Price, $[illegible].

Hupmobile runabout.

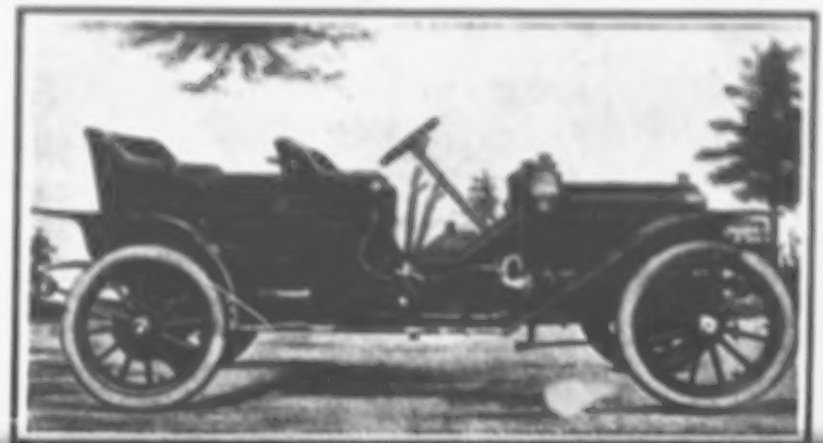
Horse-power, [illegible]; cylinders, [illegible] arranged in pairs; bore, [illegible] inches; stroke, [illegible] inches; water-cooled; ignition, high-tension, Bosch magneto; shaft drive; 1 universal joint; selective gear transmission; two foot and two emergency brakes. Price, $[illegible].

Winton touring car.

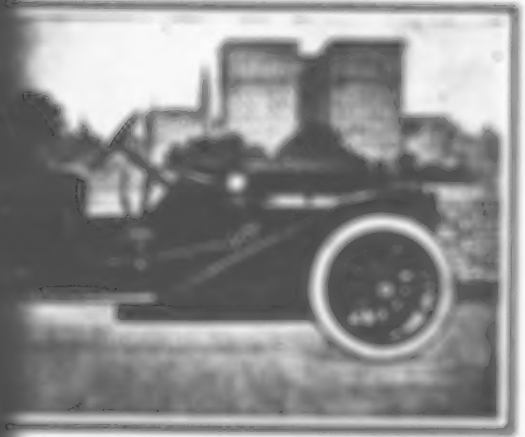
Horse-power (A. L. A. M. rating) [illegible]; 6 cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; high-tension magneto and storage battery; shaft drive; selective sliding gear transmission. Price, $[illegible].

Pierce-Arrow touring car.

Horse-power (A. L. A. M. rating) [illegible]; 6 cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; ignition, jump spark; shaft drive; selective sliding gear transmission. Price, $[illegible].



RS



… 40-horse-power pony tonneau.

[illegible]

Cartercar, 35 horse-power.

[illegible]

Schacht …

[illegible]

… 40-horse-power touring car.

[illegible]

Hupmobile runabout.

[illegible]

Premier 40-horse-p…

[illegible]

… inch touring car.

[illegible]

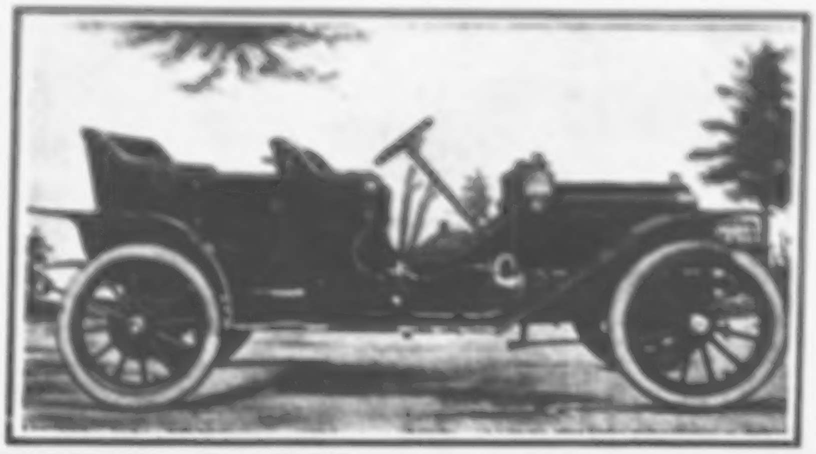
Pierce-Arrow touring car.

[illegible]

Cadillac 40-hor…

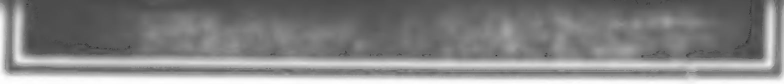
[illegible]

K-R-I-T runabout.



Maxwell 40-horse-power touring car.

[illegible]



Chalmers-Detroit 40-horse-power pony tonneau.

Cone clutch; four cylinders cast in pairs; bore, [illegible] inches by [illegible] inches stroke; water cooling with honeycomb radiator; jump spark ignition; shaft drive; selective sliding gear transmission. Price, $[illegible]

Cartercar, 35 horse-power.

Motor, bore [illegible] inches by [illegible] inches stroke; four cylinders cast in pairs; low-tension ignition; friction transmission; [illegible] drive; [illegible] control. Price, $[illegible]

Franklin 42-horse-power touring car.

Multiple disk clutch; 6 cylinders cast separately; bore, [illegible] inches by [illegible] inches stroke; air cooled; jump spark ignition; shaft drive; selective sliding gear transmission. Price, $[illegible]

Hupmobile runabout.

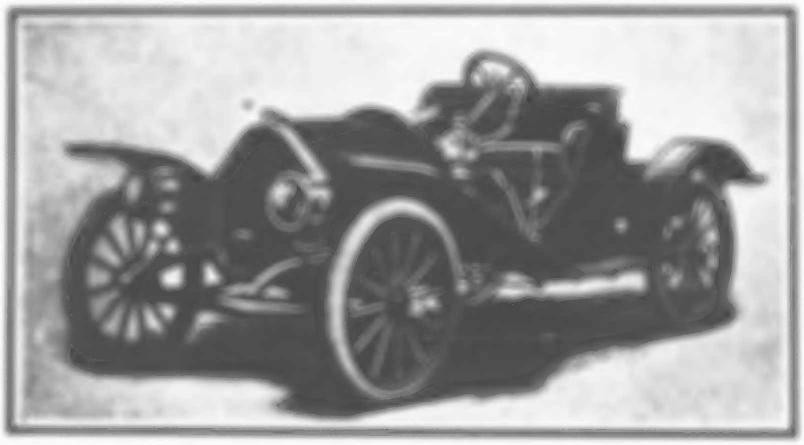
Horse-power [illegible]; 4 cylinders arranged in pairs; bore, [illegible] inches; stroke, [illegible] inches; water cooled; ignition, high-tension [illegible] magneto; shaft drive; [illegible]; selective gear transmission; two foot and two emergency brakes. Price, $[illegible]

Winton touring car.

Horse-power (A. L. A. M. rating) [illegible]; 6 cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; high-tension magneto and storage battery; shaft drive; selective sliding gear transmission. Price, $[illegible]

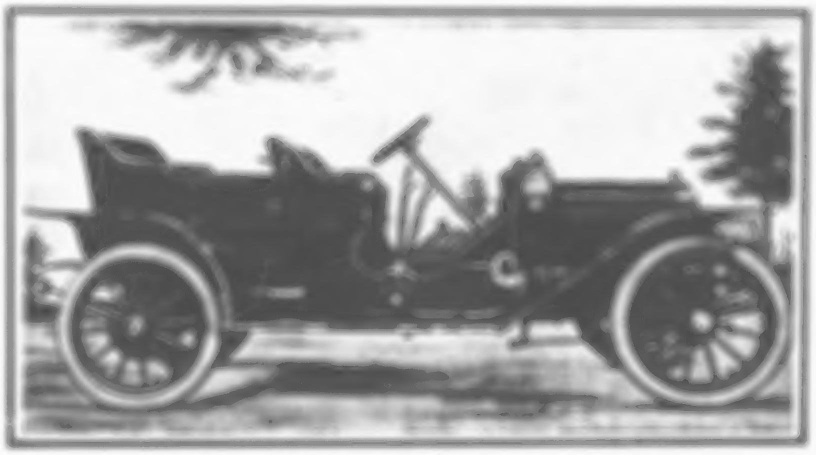
Pierce-Arrow touring car.

Horse-power (A. L. A. M. rating) [illegible]; 6 cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; ignition, jump spark; shaft drive; selective sliding gear transmission. Price, $[illegible]



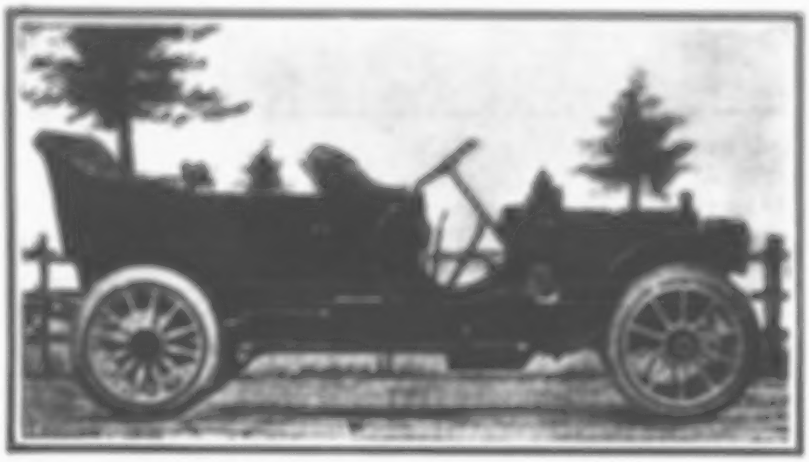
The K-R-I-T runabout.

Wheel base, [illegible] inches; wheels, [illegible] inches; sliding gear transmission; horse-power [illegible]; multiple disk clutch; weight, [illegible] pounds. Price, $[illegible]



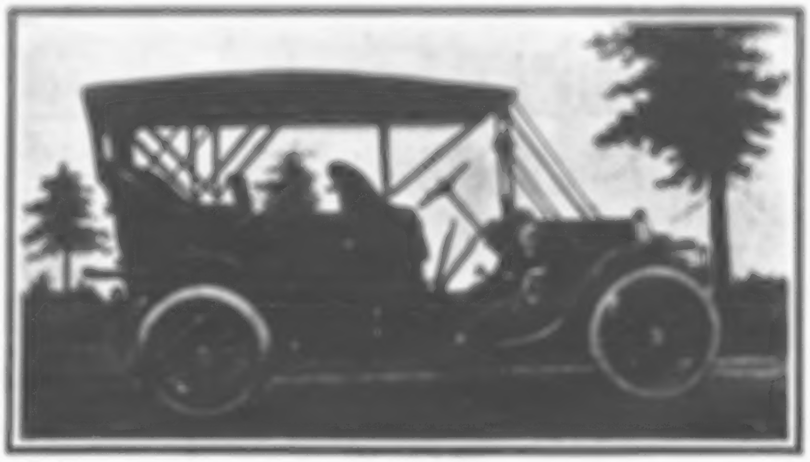
Maxwell 40-horse-power touring car.

Four cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; low-tension magneto and dry battery; shaft drive; progressive sliding gear transmission. Price, $[illegible]



Packard 30-horse-power touring car.

Four cylinders; bore, 5 inches; stroke, [illegible] inches; water cooled; jump spark ignition; low-tension magneto and storage battery; shaft drive; progressive sliding gear transmission. Price, $[illegible]



Peerless 30-horse-power touring car.

Four cylinders cast in pairs; bore, [illegible] inches; stroke, [illegible] inches; water cooled, with tubular radiator; jump spark ignition, with high-tension ignition and storage battery; selective sliding gear transmission. Price, $[illegible]

20-horse-power pony tonneau.

[illegible] in pairs; bore, [illegible] inches; stroke, [illegible] inches; water [illegible]; jump spark ignition; shaft drive; selective [illegible] gear transmission. Price, [illegible]

22-horse-power touring car.

[illegible] cast separately; bore, [illegible] inches; stroke, [illegible] inches; [illegible] ignition; shaft drive; selective sliding gear transmission. Price, [illegible]

Winton touring car.

[illegible] cylinders; bore, [illegible] inches; stroke, [illegible] inches; water [illegible] high-tension magneto and storage battery; shaft drive; [illegible] sliding gear transmission. Price, [illegible]

he K-R-I-T runabout.

[illegible] inches; sliding gear transmission; horse-power [illegible]; weight, [illegible] pounds. Price, [illegible]

30-horse-power touring car.

[illegible]; stroke, [illegible] inches; water cooled; jump spark [illegible] magneto and storage battery; shaft drive; [illegible] sliding gear transmission. Price, [illegible]

Cartercar, 22 horse-power.

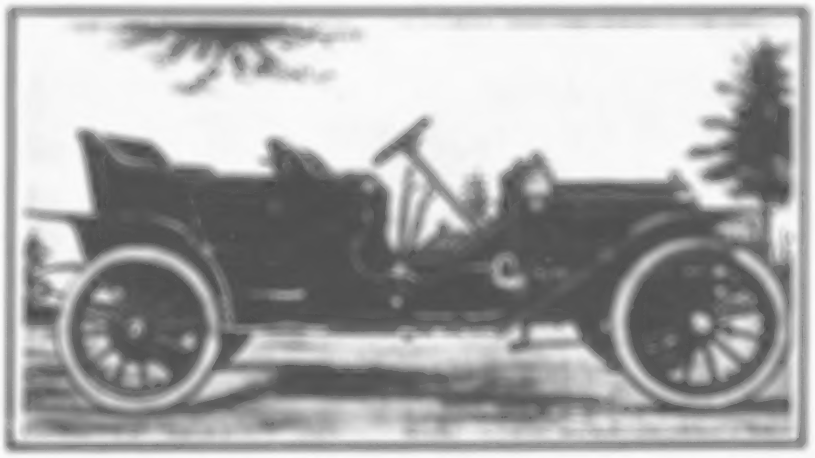
Motor, bore [illegible] inches by [illegible] inches stroke; four cylinders cast in pairs; [illegible] ignition; friction transmission; [illegible]; chain [illegible] drive; [illegible] control. Price, [illegible]

Hupmobile runabout.

Horse-power, [illegible]; [illegible] cylinders, [illegible] cast in pairs; bore, [illegible] inches; stroke, [illegible] inches; water cooled; [illegible] magneto; shaft drive; [illegible]; selective gear transmission; two foot and two emergency brakes. Price, [illegible]

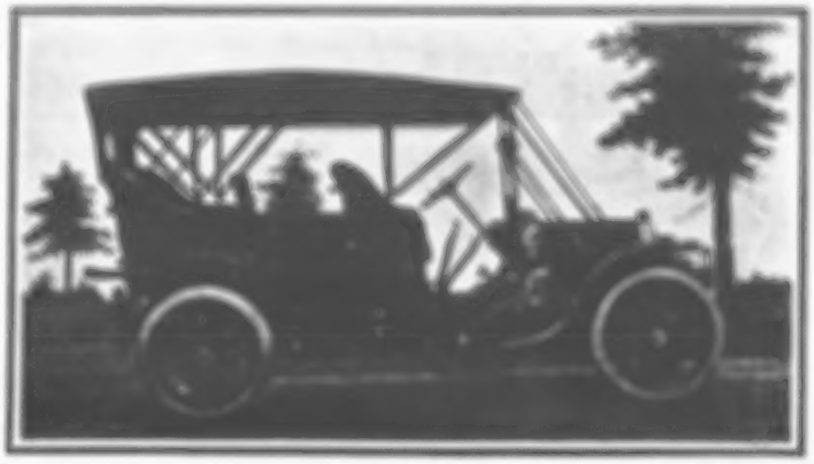
Pierce-Arrow touring car.

Horse-power (A. L. A. M. rating) [illegible]; [illegible] cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; ignition, jump spark; shaft drive; selective sliding gear transmission. Price, [illegible]



Maxwell 30-horse-power touring car.

Four cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; low-tension magneto and dry battery; shaft drive; progressive sliding gear transmission. Price, [illegible]



Peerless 30-horse-power touring car.

Four cylinders cast in pairs; bore, [illegible] inches; stroke, [illegible] inches; water cooled, with tubular radiator; jump spark ignition, with high-tension ignition and storage battery; selective sliding gear transmission. Price, [illegible]

Schacht co

Motor, opposed water cooled, [illegible]; chain drive; jump spark [illegible]

Premier 30-horse-p

Four cylinders cast in pairs; bore, [illegible] [illegible] ignition; [illegible] sliding gear transmission

Cadillac thirt

Cone clutch; contracting and expanding [illegible]; bore [illegible] inches by stroke [illegible] inches; [illegible] ignition; shaft drive; [illegible]

Royal Tourist

Horse-power (A. L. A. M. rating), [illegible]; cylinders [illegible]; water cooled; jump spark ignition; shaft [illegible] gear; expanding [illegible]

The Hudso

Cone clutch; horse-power, [illegible]; four cylinders [illegible] stroke; water cooled; jump spark ignition [illegible] [illegible] brake on propeller shaft and [illegible]

vertible car.

[illegible] Price, $[illegible]

Brush runabout.

[illegible] Price, $[illegible]

Overland touring car. 25-

[illegible]

ncer touring car.

[illegible] Price, $[illegible]

Rambler touring car.

[illegible] Price, $[illegible]

Oldsmobile 40-horse-power

[illegible]

-power limousine.

[illegible] Price, $[illegible]

Pope-Hartford 30-horse-power touring car.

Four cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; [illegible] shaft drive; selective sliding gear transmission. Price, $[illegible]

Baker electric runa

[illegible]

touring car.

, 4; bore, [illegible] inches; stroke, [illegible] inches; drive; transmission, selective sliding. Price, $[illegible]

Mitchell touring car.

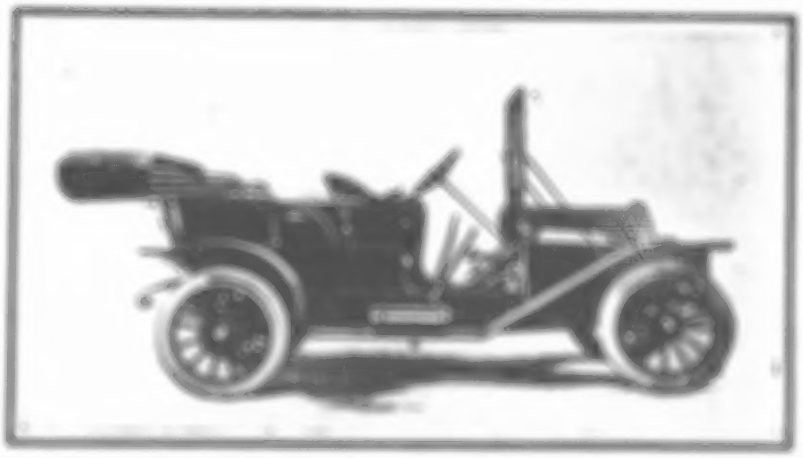
Horse-power (A. L. A. M. rating) [illegible]; 4 cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; high-tension magneto and dry battery; shaft drive; transmission, selective sliding gear. Price, $[illegible]

Stevens-Duryea touri

Horse-power (A. L. A. M. rating) [illegible]; 4 cylinders; water cooled; jump spark ignition; high-tension shaft drive; transmission, progressive slidi

Brush runabout.

[illegible] single cylinder [illegible]. Price, [illegible].



Overland touring car. [illegible] horse-power

[illegible] sliding gear transmission. Price, [illegible].

Franklin touring car.

Motor: bore, [illegible] inches; stroke, [illegible] inches; [illegible] cylinders; [illegible]. Price, [illegible].

Oldsmobile [illegible]-horse-power special touring car.

Four cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; high-tension magneto and dry battery; shaft drive; selective sliding gear transmission. Price, [illegible].

Pope-Hartford [illegible]-horse-power touring car.

Four cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; [illegible]; shaft drive; selective sliding gear transmission. Price, [illegible].

Baker electric runabout.

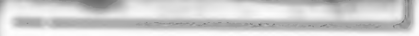
[illegible]; shaft drive; [illegible] rear axle with ball bearings; motor, [illegible]; controller, [illegible] with [illegible] speeds forward and [illegible] reverse; [illegible]. Price, [illegible].

Mitchell touring car.

Horse-power (A. L. A. M. rating) [illegible]; 4 cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; high-tension magneto and dry battery; shaft drive; transmission, selective sliding gear. Price, [illegible].

Stevens-Duryea touring car.

Horse-power (A. L. A. M. rating) [illegible]; [illegible] cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; high-tension magneto and dry battery; shaft drive; transmission, progressive sliding gear. Price, [illegible].



...vertible car.

[illegible]

...ower touring car.

[illegible]

...-power limousine.

[illegible]

...touring car.

[illegible]

...runabout.

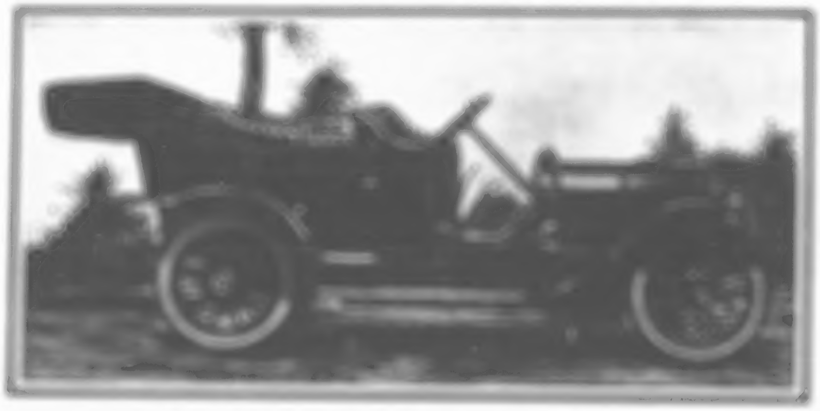
[illegible]

Brush runabout.

[illegible]

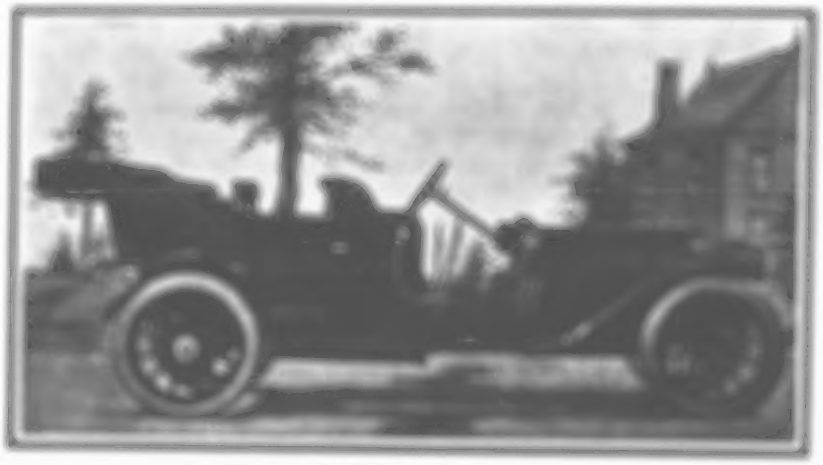
Rambler touring car.

[illegible]



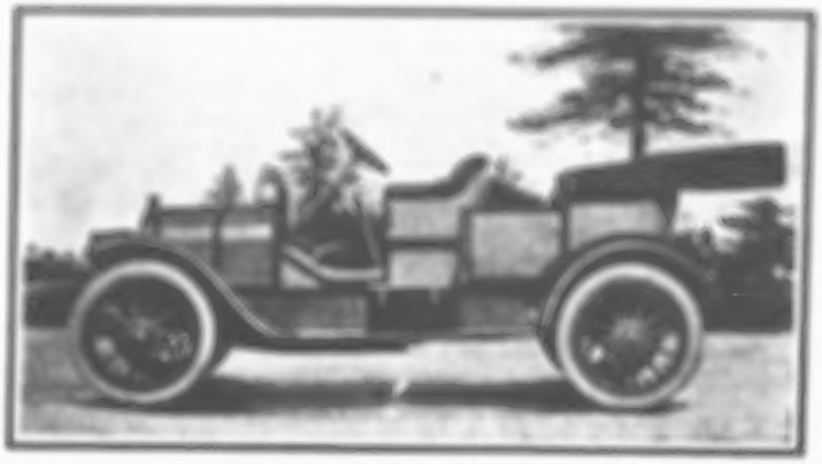
Page-Hartford 30-horse-power touring car.

Four cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; [illegible] shaft drive; selective sliding gear transmission. Price, [illegible].



Mitchell touring car.

Horse-power (A. L. A. M. rating) [illegible]; 6 cylinders; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition; high-tension magneto and dry battery; shaft drive; transmission, selective sliding gear. Price, [illegible].



White 20-horse-power gasoline car.

Cone clutch; 4 cylinders cast en bloc; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition with high-tension magneto; shaft drive; selective sliding gear transmission. Price, [illegible].

Overland touring car. ...

[illegible]

Oldsmobile 40-horse-power ...

[illegible]

Baker electric runab...

[illegible]

Stevens-Duryea touring...

[illegible]

Everett-Metzger-Flanders 30-horse-...

[illegible]

Brush runabout.

[illegible]

Overland touring car. [illegible] horse-power

Cone clutch; [illegible]

[illegible] touring car.

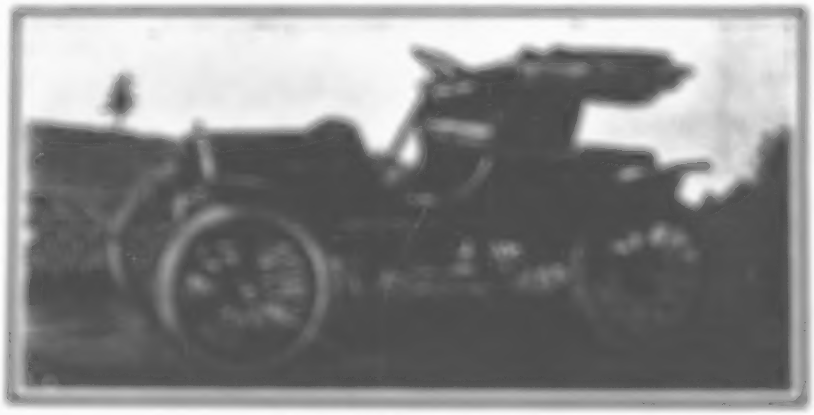
[illegible]

Oldsmobile [illegible]-horse-power special touring car.

[illegible]

Pope-Hartford [illegible]-horse-power touring car.

[illegible]



Baker electric runabout.

[illegible]

Mitchell touring car.

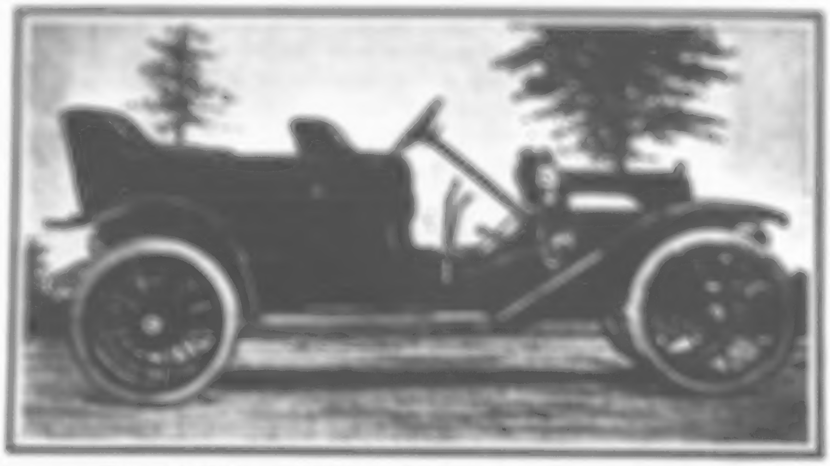
Horse-power (A. L. A. M. rating) [illegible]

Stevens-Duryea touring car.

Horse-power (A. L. A. M. rating) [illegible]

White [illegible]-horse-power gasoline car.

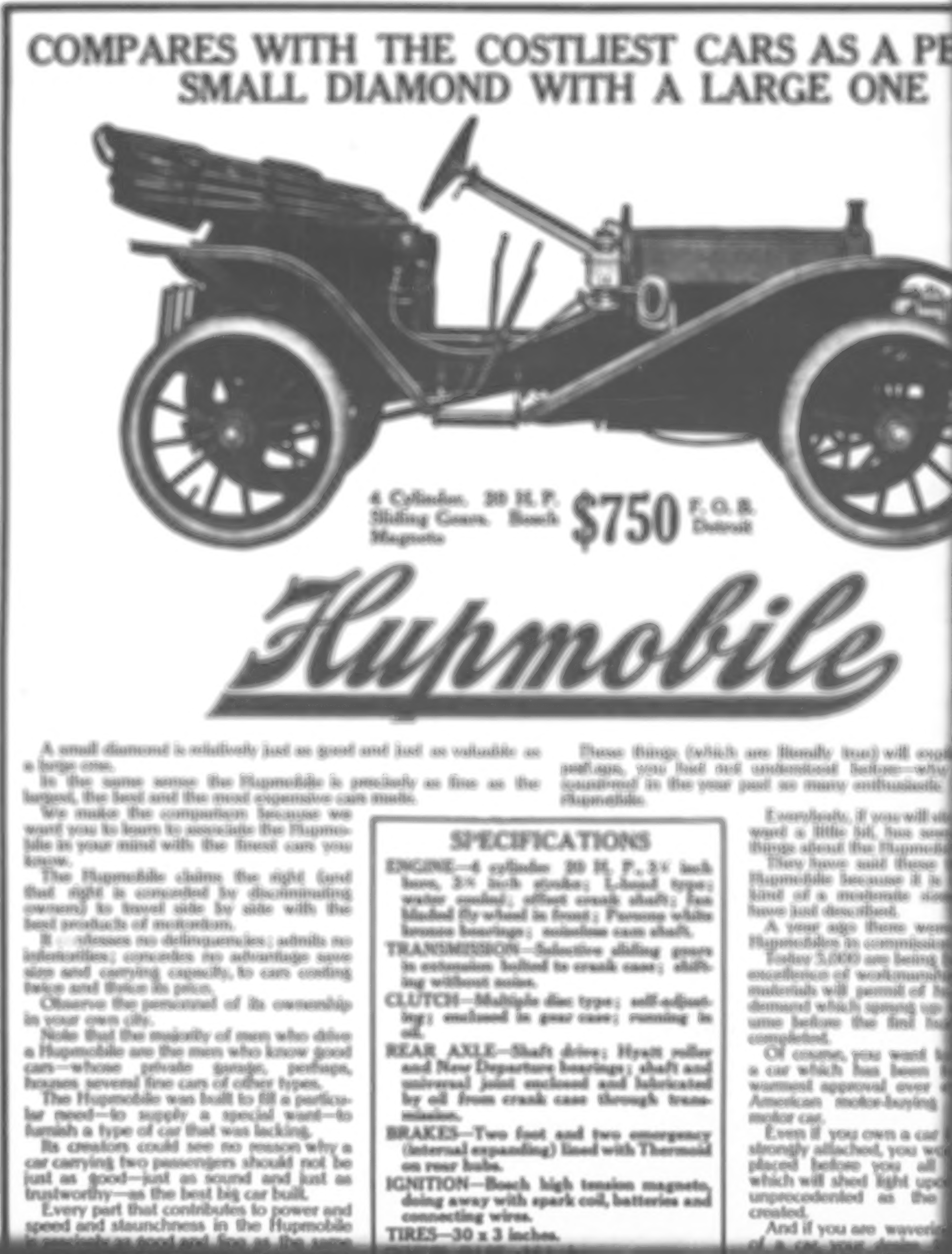
Cone clutch; 4 cylinders cast en bloc; bore, [illegible] inches; stroke, [illegible] inches; water cooled; jump spark ignition with high-tension magneto; shaft drive; selective sliding gear transmission. Price, [illegible]



Everitt-Metzger-Flanders [illegible]-horse-power touring car.

Wheel base, [illegible] inches; four cylinders cast in pairs; bore, 4 inches; stroke, [illegible] inches; water cooled; jump spark ignition; selective sliding gear transmission. Price, [illegible]

ADVERTISEMENT



COMPARES WITH THE COSTLIEST CARS AS A PE
SMALL DIAMOND WITH A LARGE ONE

4 Cylinder, 20 H. P.
Sliding Gears, Bosch
Magneto

$750 F. O. B.
Detroit

Hupmobile

A small diamond is relatively just as good and just as valuable as a large one.

In the same sense the Hupmobile is precisely as fine as the largest, the best and the most expensive cars made.

We make the comparison because we want you to learn to associate the Hupmobile in your mind with the finest cars you know.

The Hupmobile claims the right (and that right is conceded by discriminating owners) to travel side by side with the best products of motordom.

It confesses no delinquencies; admits no inferiorities; concedes no advantage save size and carrying capacity, to cars costing twice and thrice its price.

Observe the personnel of its ownership in your own city.

Note that the majority of men who drive a Hupmobile are the men who know good cars—whose private garage, perhaps, houses several fine cars of other types.

The Hupmobile was built to fill a particular need—to supply a special want—to furnish a type of car that was lacking.

Its creators could see no reason why a car carrying two passengers should not be just as good—just as sound and just as trustworthy—as the best big car built.

Every part that contributes to power and speed and staunchness in the Hupmobile is precisely as good and fine as the same

SPECIFICATIONS

ENGINE—4 cylinder 20 H. P., 3¼ inch bore, 3⅜ inch stroke; L-head type; water cooled; offset crank shaft; fan bladed fly wheel in front; Parsons white bronze bearings; noiseless cam shaft.

TRANSMISSION—Selective sliding gears in extension bolted to crank case; shifting without noise.

CLUTCH—Multiple disc type; self-adjusting; enclosed in gear case; running in oil.

REAR AXLE—Shaft drive; Hyatt roller and New Departure bearings; shaft and universal joint enclosed and lubricated by oil from crank case through transmission.

BRAKES—Two foot and two emergency (internal expanding) lined with Thermoid on rear hubs.

IGNITION—Bosch high tension magneto, doing away with spark coil, batteries and connecting wires.

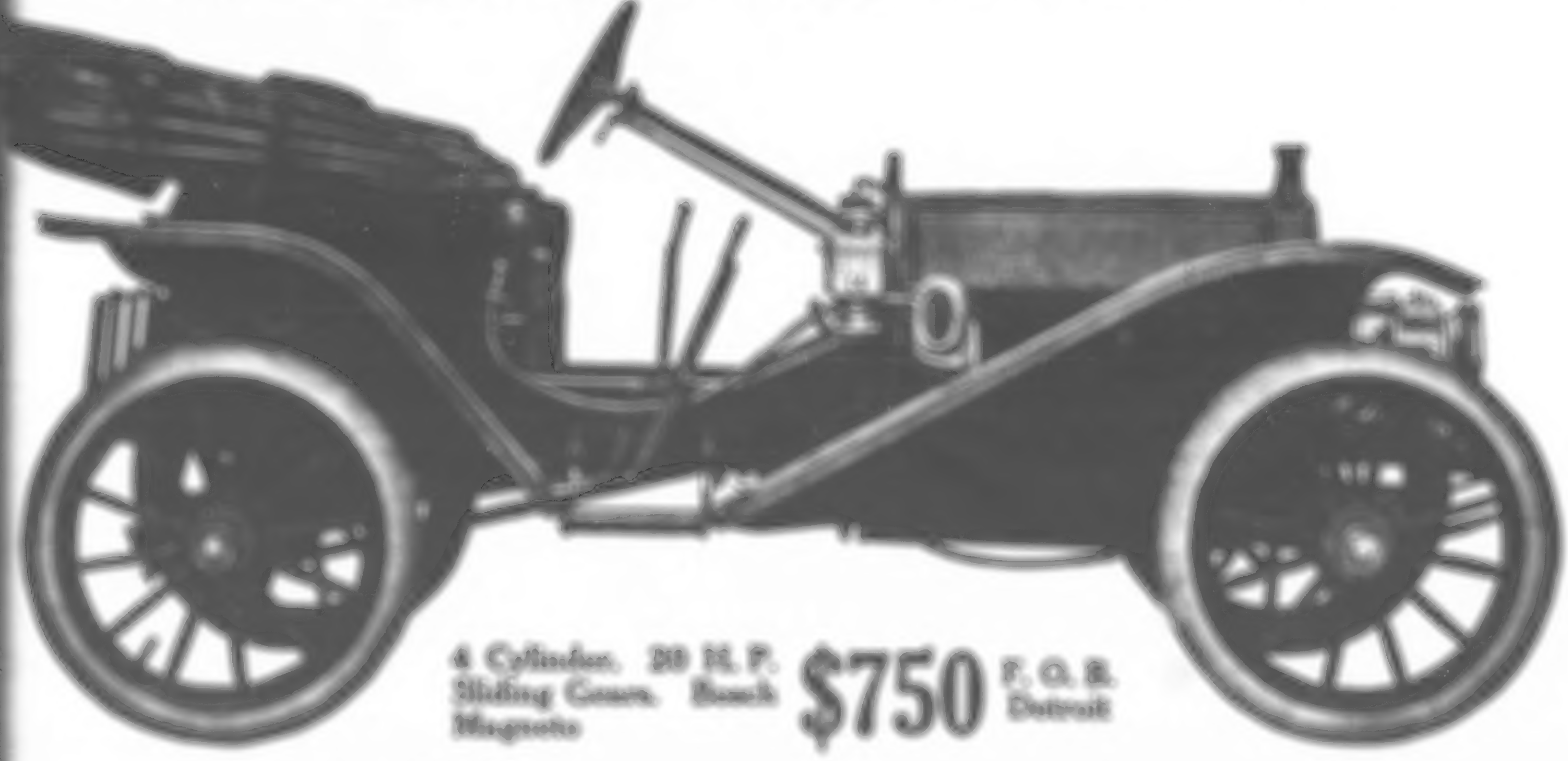
TIRES—30 x 3 inches.

These things (which are literally true) will expl
perhaps, you had not understood before—why
countered in the past year past so many enthusiastic
Hupmobile.

Everybody, if you will st
want a little bit, has so
things about the Hupmobi
They have said these
Hupmobile because it is
kind of a motorcar sim
have just described.
A year ago there were
Hupmobiles in commissio
Today 5,000 are being
excellence of workmansh
materials will permit of
demand which sprung up
time before the first
completed.
Of course, you want
a car which has been
warmest approval over
American motor-buying
motor car.
Even if you own a car
strongly attached, you w
placed before you all
which will shed light up
unprecedented as the
created.
And if you are waveri

VERTISEMENT

PARES WITH THE COSTLIEST CARS AS A PERFECT SMALL DIAMOND WITH A LARGE ONE



4 Cylinder, 20 H. P.
Sliding Gears. Bosch
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$750 F. O. B.
Detroit

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TIRES—30 x 3 inches.

These things (which are literally true) will explain to you what perhaps, you had not understood before—why you have encountered in the year past so many enthusiastic partisans of the Hupmobile.

Everybody, if you will stop to think backward a little bit, has seemed to say kind things about the Hupmobile.

They have said these things about the Hupmobile because it is the really good kind of a moderate sized car which we have just described.

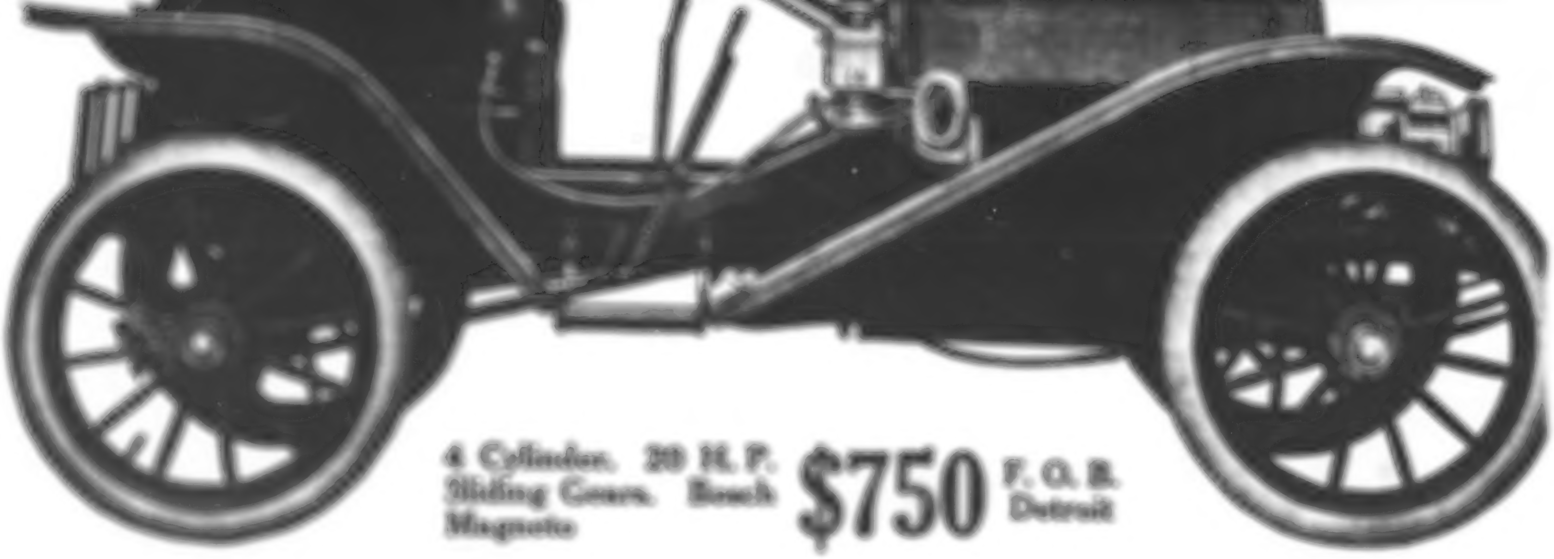
A year ago there were less than 100 Hupmobiles in commission.

Today 5,000 are being built as rapidly as excellence of workmanship with the finest materials will permit of hurry—to satisfy a demand which sprang up in incredible volume before the first hundred cars were completed.

Of course, you want to know all about a car which has been favored with the warmest approval ever extended by the American motor-buying public to any motor car.

Even if you own a car to which you are strongly attached, you would like to have placed before you all the information which will shed light upon a condition so unprecedented as the Hupmobile has created.

And if you are wavering in your choice



4 Cylinder. 20 H. P. Sliding Gears. Bosch Magneto **$750** F. O. B. Detroit

Hupmobile

A small diamond is relatively just as good and just as valuable as a large one.

In the same sense the Hupmobile is precisely as fine as the largest, the best and the most expensive cars made.

We make the comparison because we want you to learn to associate the Hupmobile in your mind with the finest cars you know.

The Hupmobile claims the right (and that right is conceded by discriminating owners) to travel side by side with the best products of motordom.

It confesses no delinquencies; admits no inferiorities; concedes no advantage save size and carrying capacity, to cars costing twice and thrice its price.

Observe the personnel of its ownership in your own city.

Note that the majority of men who drive a Hupmobile are the men who know good cars—whose private garage, perhaps, houses several fine cars of other types.

The Hupmobile was built to fill a particular need—to supply a special want—to furnish a type of car that was lacking.

Its creators could see no reason why a car carrying two passengers should not be just as good—just as sound and just as trustworthy—as the best big car built.

Every part that contributes to power and speed and staunchness in the Hupmobile is precisely as good and fine as the same part in the best big car.

The two are mates in quality.

The Hupmobile will go anywhere that the big car will go; climb any hill the big car will climb; and do anything the big car will do except that it will not carry the same number of passengers.

When you buy the ordinary car of moderate price, you say to yourself:—

"I am getting just the sort of a car indicated by the price—a moderately good car."

When you buy a Hupmobile, on the contrary, you buy a quality and a degree of excellence with which the price has nothing to do.

If the Hupmobile were any bigger, it could not be made as good without increasing the price.

SPECIFICATIONS

ENGINE—4 cylinder, 20 H. P., 3¼ inch bore, 3⅜ inch stroke; L-head type; water cooled; offset crank shaft; fan bladed fly-wheel in front; Parsons white bronze bearings; noiseless cam shaft.

TRANSMISSION—Selective sliding gears in extension bolted to crank case; shifting without noise.

CLUTCH—Multiple disc type; self-adjusting; enclosed in gear case; running in oil.

REAR AXLE—Shaft drive; Hyatt roller and New Departure bearings; shaft and universal joint enclosed and lubricated by oil from crank case through transmission.

BRAKES—Two foot and two emergency (internal expanding) lined with Thermoid on rear hubs.

IGNITION—Bosch high tension magneto, doing away with spark coil, batteries and connecting wires.

TIRES—30 x 3 inches.

WHEEL BASE—86 inches.

TREAD—56 inches.

SPRINGS—Semi-elliptical front, patented cross spring rear.

EQUIPMENT—Two side and tail oil lamps, dragon horn, tools, repair kit, pump.

WEIGHT—1100 pounds regular equipment.

These things (which are literally true) will explain to
perhaps, you had not understood before—why you
encountered in the year past so many enthusiastic partisa
Hupmobile.

Everybody, if you will stop to th
ward a little bit, has seemed to
things about the Hupmobile.

They have said these things
Hupmobile because it is the ne
kind of a moderate sized car
have just described.

A year ago there were less t
Hupmobiles in commission.

Today 3,000 are being built, as
excellence of workmanship with
materials will permit of hurry—to
demand which sprang up in incre
time before the first hundred
completed.

Of course, you want to know
a car which has been favored
warmest approval over extende
American motor-buying public
motor car.

Even if you own a car to whic
strongly attached, you would like
placed before you all the in
which will shed light upon a car
unprecedented as the Hupmo
created.

And if you are wavering in yo
of a car, your desire to know
stronger.

Sign and send the coupon.

It will bring you not only the H
literature, picturing and describ
1910 Hupmobile in every detail.

It will bring in addition, the
and address of the Hupmob
dealer in your home, or the one
nearest you.

We will put you in direct
touch with the car, so that
you can ride in it and satisfy yourself as to the
literal truth of every statement we have
made.

Clip the coupon and send it now.

As an object lesson, three Hupmobiles were driven through the biting winter weather and deep snows, from Detroit to New York for the Grand Central Palace Show.

HUPP MOTOR CAR COMPANY

DEPT. Q. DETROIT, MICH.

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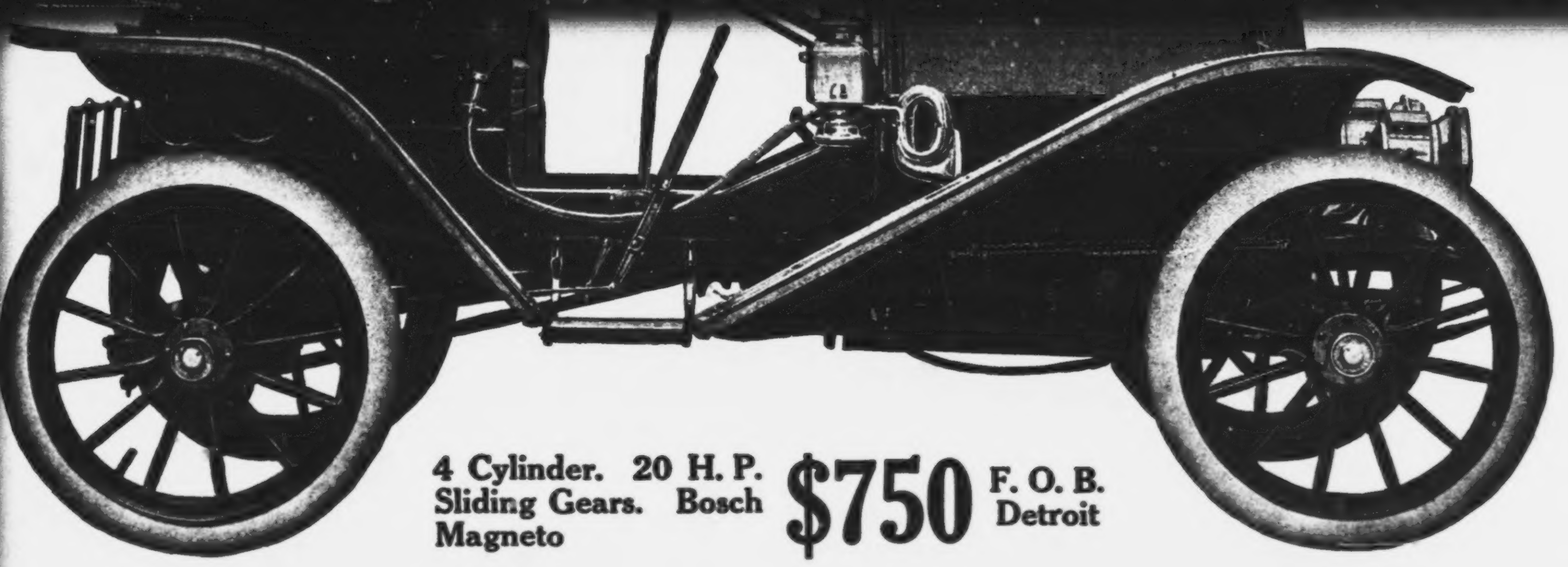
Address............



4 Cylinder. 20 H. P. Sliding Gears. Bosch Magneto **$750** **F. O. B. Detroit**

Hupmobile

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best and the most expensive cars made.
the comparison because we
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price—a moderately good car."
buy a Hupmobile, on the contrary, you buy a quality
of excellence with which the price has nothing to do.
mobile were any bigger, it could not be made as good
asing the price.

SPECIFICATIONS

ENGINE—4 cylinder 20 H. P., 3¼ inch bore, 3⅜ inch stroke; L-head type; water cooled; offset crank shaft; fan bladed fly wheel in front; Parsons white bronze bearings; noiseless cam shaft.

TRANSMISSION—Selective sliding gears in extension bolted to crank case; shifting without noise.

CLUTCH—Multiple disc type; self-adjusting; enclosed in gear case; running in oil.

REAR AXLE—Shaft drive; Hyatt roller and New Departure bearings; shaft and universal joint enclosed and lubricated by oil from crank case through transmission.

BRAKES—Two foot and two emergency (internal expanding) lined with Thermoid on rear hubs.

IGNITION—Bosch high tension magneto, doing away with spark coil, batteries and connecting wires.

TIRES—30 x 3 inches.

WHEEL BASE—86 inches.

TREAD—56 inches.

SPRINGS—Semi-elliptical front, patented cross spring rear.

EQUIPMENT—Two side and tail oil lamps, dragon horn, tools, repair kit, pump.

WEIGHT—1100 pounds regular equipment.

These things (which are literally true) will explain to you what perhaps, you had not understood before—why you have encountered in the year past so many enthusiastic partisans of the Hupmobile.

Everybody, if you will stop to think backward a little bit, has seemed to say kind things about the Hupmobile.

They have said these things about the Hupmobile because it is the newly good kind of a moderate sized car which we have just described.

A year ago there were less than 100 Hupmobiles in commission.

Today 5,000 are being built, as rapidly as excellence of workmanship with the finest materials will permit of hurry—to satisfy a demand which sprang up in incredible volume before the first hundred cars were completed.

Of course, you want to know all about a car which has been favored with the warmest approval ever extended by the American motor-buying public to any motor car.

Even if you own a car to which you are strongly attached, you would like to have placed before you all the information which will shed light upon a condition so unprecedented as the Hupmobile has created.

And if you are wavering in your choice of a car, your desire to know is even stronger.

Sign and send the coupon.

It will bring you not only the Hupmobile literature, picturing and describing the 1910 Hupmobile in every detail.

It will bring in addition, the name and address of the Hupmobile dealer in your home, or the one nearest you.

We will put you in direct touch with the car, so that you can ride in it and satisfy yourself as to the literal truth of every statement we have made.

Clip the coupon and send it now.

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ral Palace Show.

HUPP MOTOR CAR COMPANY

DETROIT, MICH.

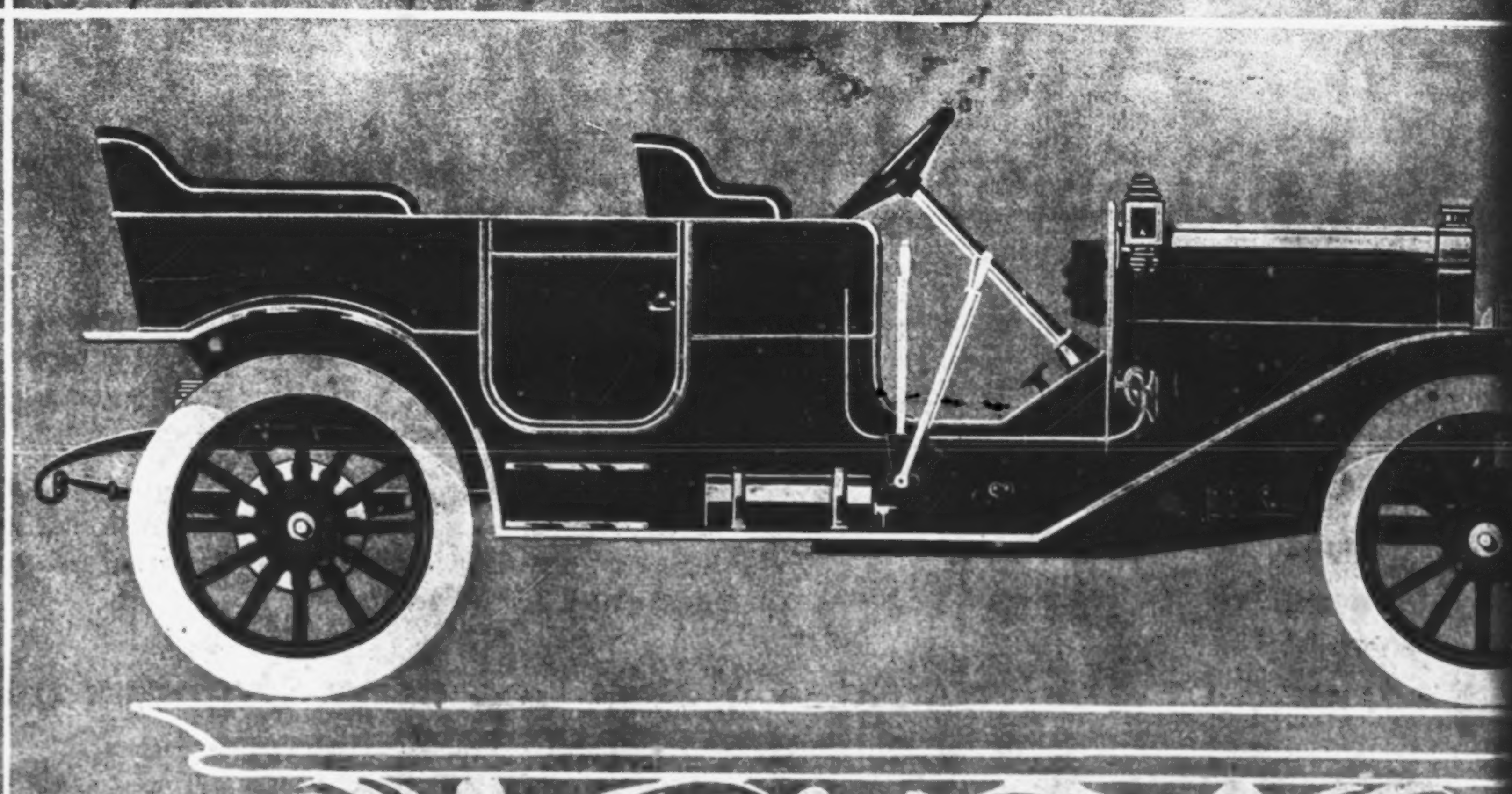
**Hupp
Motor
Car Co.**
Dept. Q
DETROIT, MICH.

Send 1910 Hupmobile literature and name and address of Hupmobile dealer.

Name ....

Address ______________________

ADVERTISEMENT



The Springfield

Here is a Special Car for a few Select Buyer

Price, for either Standard Touring or Torpedo Bodies **$2500**

ABOUT three hundred prospective purchasers who have it in mind to pay from four to five thousand dollars can "get on this made-to-order Springfield for 1910.

For the past three years a limited number of these cars (about 100 each year) have been made for special buyers, who desired certain features in their cars not to be found in any cars on the market regardless of price.

Hence the Springfield has come to be known as the "made-to-order" car.

Until this year no attempt has been made to manufacture more than the few cars, which were easily sold by private to the class of buyers to whom a car of this character appeals.

For this reason practically no advertising has ever appeared concerning the Springfield.

This year, however, we have increased our facilities, and hope to be able to supply in the neighborhood of th **hundred cars.**

The fact that we **manufacture** practically every part that enters into the Springfield makes it impossible (even were so inclined) to make them in the quantities possible with an assembled car.

No apology is made for the low price we have placed upon the car. This price enables us to supply the best materi every kind it is possible to buy, and in addition gives us a fair profit.

We are willing to let the specifications speak for the **quality** of material used and the general character of the car.

The automobile dealer, familiar with all makes, will immediately recognize in these specifications and the accompa illustrations an automobile of the strict de-luxe type—a car of the character that will always have a ready sale among those are in a position to buy the **best** cars.

SPECIFICATIONS:

MOTOR—Four cylinder, vertical, water cooled, 5 inch bore 4¾ inch stroke.

VALVES—All on one side, interchangeable; operated by single cam shaft with cams integral with shaft, and mounted on Annular Ball Bearings. Idler Gear, Pump and magneto shaft mounted on genuine imported Annular Ball Bearings.

TRANSMISSION-Selective type, sliding gear, three speeds forward and reverse; mounted on genuine imported F. & S. Annular Ball Bearings. All gears and shafts of heat-treated Chrome Vanadium Steel.

REAR AXLE—One piece seamless drawn Chrome Vanadium Steel housing of the clutch driven floating type, Gears and shafts Chrome Vanadium Steel, heat treated, mounted on genuine imported Annular Ball Bearings.

SPRINGS—Vanadium steel, semi-elliptic front, three-quarter elliptic rear

IGNITION—Jump spark, 4-unit coil on dash, storage battery, double system with genuine Type D-4 Bosch magneto; two spark plugs in each cylinder.

LUBRICATION—Positive, automatic oil system enclosed in crank case of motor.

DRIVE—Shaft, with large bevel gears of heat treated Chrome Vanadium Steel.

BRAKES—Two independent systems, internal expanding type, Raybestos faced. Foot brake 14 inches in diameter; operated by cam arrangement.

BODY—Straight line, five or seven passenger, sheet metal and

GASOLINE CAPACITY—Twenty gallons under fo

MUFFLER—Our own construction, free and silent, back pressure.

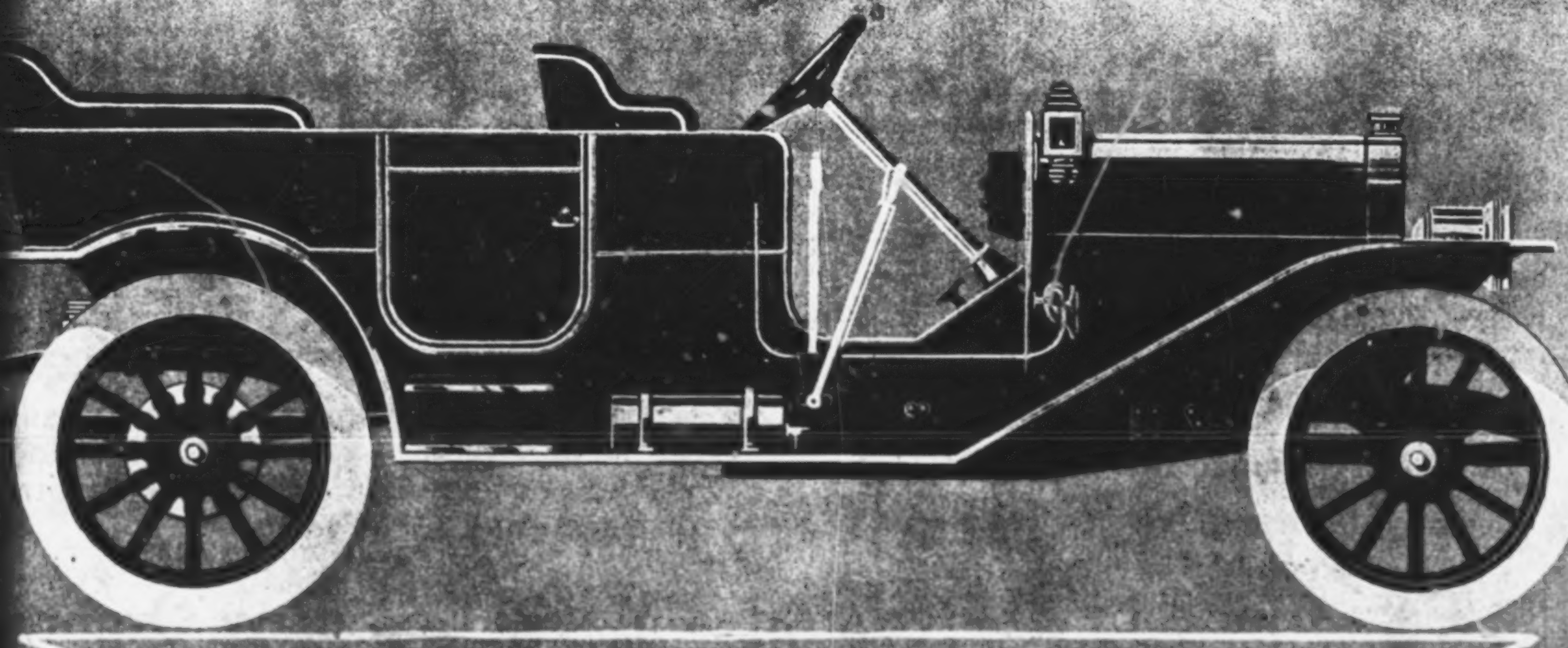
RADIATOR—Latest design, genuine honeycomb ty large and efficient.

CARBURETOR—Stromberg, float feed type, aux valve and water jacketed.

CLUTCH—Large cone type with ball thrust bearings means of spring adjustment.

WHEEL BASE—128 inches.
TREAD—56½ inches.
GEAR RATIO—3:1.
CLEARANCE—10 inches.

VERTISEMENT



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The fact that we **manufacture** practically every part that enters into the Springfield makes it impossible (even if we were so inclined) to make them in the quantities possible with an assembled car.

No apology is made for the low price we have placed upon the car. This price enables us to supply the best material of every kind it is possible to buy, and in addition gives us a fair profit.

We are willing to let the specifications speak for the **quality** of material used and the general character of the car.

The automobile dealer, familiar with all makes, will immediately recognize in these specifications and the accompanying illustrations an automobile of the strict de-luxe type—a car of the character that will always have a ready sale among those who are in a position to buy the **best** cars.

SPECIFICATIONS:

MOTOR—Four cylinder, vertical, water cooled, 5 inch bore 4¾ inch stroke.

VALVES—All on one side, interchangeable; operated by single cam shaft with cams integral with shaft, and mounted on Annular Ball Bearings. Idler Gear, Pump and magneto shaft mounted on genuine imported Annular Ball Bearings.

TRANSMISSION—Selective type, sliding gear, three speeds forward and reverse; mounted on genuine imported F. & S. Annular Ball Bearings. All gears and shafts of heat-treated Chrome Vanadium Steel.

REAR AXLE—One piece seamless drawn Chrome Vanadium Steel housing of the clutch driven floating type, Gears and shafts Chrome Vanadium Steel, heat treated, mounted on genuine imported Annular Ball Bearings.

FRONT AXLE—Special I-beam drop forged in one piece, of heat-treated Chrome Vanadium Steel, with ball bearing steering knuckle.

SPRINGS—Vanadium steel, semi-elliptic front, three-quarter elliptic rear

IGNITION—Jump spark, 4-unit coil on dash, storage battery, double system with genuine Type D-4 Bosch magneto; two spark plugs in each cylinder.

LUBRICATION—Positive, automatic oil system enclosed in crank case of motor.

DRIVE—Shaft, with large bevel gears of heat treated Chrome Vanadium Steel.

BRAKES—Two independent systems, internal expanding type, Raybestos faced. Foot brake 14 inches in diameter; operated by cam arrangement.

BODY—Straight line, five or seven passenger, sheet metal and upholstered in genuine hand buffed leather.

TIRES—36x5 inches rear, 36x4 inches front; Quick Detachable rims.

STEERING GEAR—Irreversible, 18 inch wheel; controlling

GASOLINE CAPACITY—Twenty gallons under front seat.

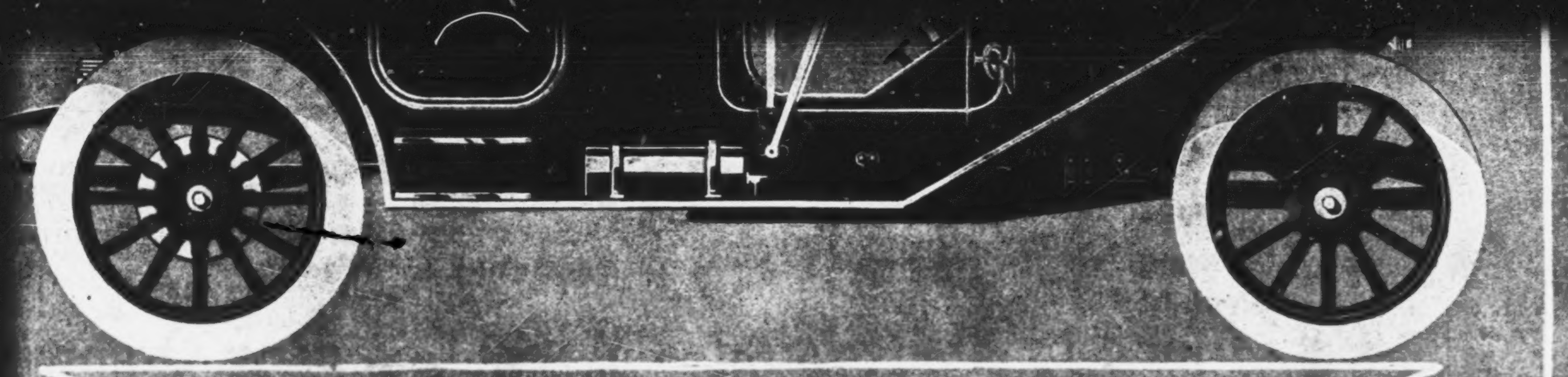
MUFFLER—Our own construction, free and silent, with no back pressure.

RADIATOR—Latest design, genuine honeycomb type; very large and efficient.

CARBURETOR—Stromberg, float feed type, auxiliary air valve and water jacketed.

CLUTCH—Large cone type with ball thrust bearings. Simple means of spring adjustment.

WHEEL BASE—128 inches.
TREAD—56½ inches.
GEAR RATIO—3:1.
CLEARANCE—10 inches.
COLOR Greens, grays, blues, maroons, yellows, etc.
WEIGHT—2,900 pounds.
EQUIPMENT—Two gas and three oil lamps, generator, horn, jack, tire and repair tools.



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SPECIFICATIONS:

MOTOR—Four cylinder, vertical, water cooled, 5 inch bore 4¾ inch stroke.

VALVES—All on one side, interchangeable; operated by single cam shaft with cams integral with shaft, and mounted on Annular Ball Bearings. Idler Gear, Pump and magneto shaft mounted on genuine Imported Annular Ball Bearings.

TRANSMISSION—Selective type, sliding gear, three speeds forward and reverse; mounted on genuine Imported F. & S. Annular Ball Bearings. All gears and shafts of heat-treated Chrome Vanadium Steel.

REAR AXLE—One piece seamless drawn Chrome Vanadium Steel housing of the clutch driven floating type. Gears and shafts Chrome Vanadium Steel, heat treated, mounted on genuine Imported Annular Ball Bearings.

FRONT AXLE—Special I-beam drop forged in one piece, of heat-treated Chrome Vanadium Steel, with ball bearing steering knuckle.

FRAME—Pressed steel, reinforced.

SPRINGS—Vanadium steel, semi-elliptic front, three-quarter elliptic rear

IGNITION—Jump spark, 4-unit coil on dash, storage battery, double system with genuine Type D-4 Bosch magneto; two spark plugs in each cylinder.

LUBRICATION—Positive, automatic oil system enclosed in crank case of motor.

DRIVE—Shaft, with large bevel gears of heat treated Chrome Vanadium Steel.

BRAKES—Two independent systems, internal expanding type, Raybestos faced. Foot brake 14 inches in diameter; operated by cam arrangement.

BODY—Straight line, five or seven passenger, sheet metal and upholstered in genuine hand buffed leather.

TIRES—36 x 5 inches rear, 36 x 4 inches front; Quick Detachable rims.

STEERING GEAR—Irreversible, 18 inch wheel; controlling mechanism on top of wheel.

GASOLINE CAPACITY—Twenty gallons under front seat.

MUFFLER—Our own construction, free and silent, with no back pressure.

RADIATOR—Latest design, genuine honeycomb type; very large and efficient.

CARBURETOR—Stromberg, float feed type, auxiliary air valve and water jacketed.

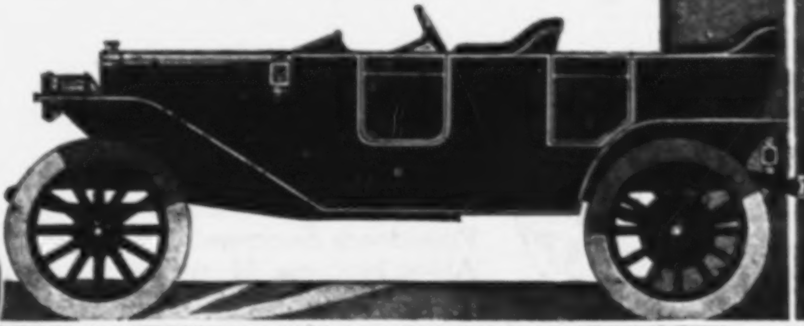
CLUTCH—Large cone type with ball thrust bearings. Simple means of spring adjustment.

WHEEL BASE—128 inches.
TREAD—56½ inches.
GEAR RATIO—1:1.
CLEARANCE—10 inches.
COLOR Greens, grays, blues, maroons, yellows, etc.
WEIGHT—2,900 pounds.
EQUIPMENT—Two gas and three oil lamps, generator, horn, jack, tire and repair tools.
PRICE—$2,500.

Correspondence Solicited

The Springfield Motor Car Company

311 Monroe Street
SPRINGFIELD, ILL.



ADVERTISEMENT

New Automobile Pr

Revolutionizing Motor Car Standa

THE United States Motor Company announces a new schedule of prices, effective now. This announcement has appeared in the newspapers of forty-nine cities. The automobile world—the entire reading public—will be amazed that this announcement, involving as it does lower prices for 1911 models, is made during the New York Show, which is the signal for heavy buying to begin.

We therefore earnestly request you to read every word on this page. It marks the beginning
in motor car history—the establishme
mobile standards—the attainment of
possible through the co-operation a
realized in the formation of this com

We manufacture one-fourth of all
made in the United States and one
cars made in the world. We contro
facturing processes.

Cars Made by United States Motor Company Organi

Ranging in Price from $450 to $8000

BRUSH, formerly $485, is now	**$450**
This is the standard runabout, model E	
Roadster, Model E 26, formerly $600, now with equipment extra	**$485**
MAXWELL, 16 H. P. runabout	**$600**
This **Model AB Runabout** now includes $70 equipment, consisting of top, gas lamps and generator, at the former $600 price.	
Model Q, 22 H.P., 4 cylinder, formerly $900, now	**$750**
Model I, 25 H.P., fore-door touring car, formerly $1100, equal to any car in the $1250 class, now	**$950**
Model EA, 30 H. P., fore-door touring car, formerly $1600, equal to any car in the $1500 to $1800 class, now	**$1350**
SAMPSON 35, touring car, a recent addition to our line, is listed at a price to command instant attention	**$1250** to **$1325**
STODDARD-DAYTON models, from	**$1175** t
These models are all unchanged in price, but i every case show worth higher than the 191 models. The **50 H. P. Stoddard-Dayton** distinguished by exceptional refinements.	
COLUMBIA, a new model, for	
Higher powered and more exquisite finish at slightly higher price than formerly.	
Both **Stoddard-Dayton** and **Columbia** cars stan for the limit of motor car excellence and luxu regardless of price. No better cars can be ma until the world's engineering knowledge is enlarg and the skill of its craftsmen is heightened.	
BRUSH DELIVERY, formerly $685, now .	
This is the 600-pound delivery wagon.	
SAMPSON TRUCKS, 1000 pound delivery moto 1 ton, 2 ton, 3 ton, 4 ton, 5 ton trucks, and 20 to 4 ton road trains, ...	**$1150**

GRAY Marine and Stationary Engines—Recognized as standard all over the world.

18 Plants—Capacity 52,000 Cars—52 Models—14,000 Employees—34 Branches—Deal

THIS readjustment of values is the logical result of the original plan, policy and ideal to which the United States Motor Company owes its birth. Patiently and persistently we have worked to this end—harmonizing, organizing, specializing—always seeking to increase the efficiency of our organization, to improve the quality of our product—always with the ultimate aim in view—the attainment of an unquestioned leadership, because deserved.

The United States Motor Company is composed of 11 constituent companies—each the leader of its class. It operates eighteen separate factories, with a combined floor space of 49 acres. It employs 14,000 skilled artisans and a corps of original investigators, the benefit of whose work is shared by all the companies alike. The individual genius which built up each successful constituent company still directs it, but spurred by friendly rivalry to greater exertion. The broad plans and policies of the parent company are outlined and executed in the fulness of the combined experience of these men.

The product of these companies includes 52 different models—cars designed for every need, utility and pleasure vehicles, for passenger and freight carriage. They range in price from $450 to $8000.

OUR selling organization embraces 34 branch houses and dealers everywhere. This distribu-

in the hands of owners that cannot be duplicated by any other company.

And this organization is owned by upward of a thousand stockholders scattered all over the country; is operated on a co-operative basis, with all our employees working whole-heartedly for our success and sharing in our prosperity, while the executive management is based on military dicipline. No one man, no clique, holds the majority of the stock. Our stock can be bought in the open market by any one, therefore "control" depends only on efficiency.

IN BUYING raw material we are able, by massing our purchases, to secure lower prices and maintain higher quality. By interchange of experience in our engineering department, we avoid costly mistakes and produce better cars. Our original investigations which produce improvements cost little when distributed over our vast product. An improvement in method is introduced immediately in all our plants.

If particular skill and equipment produce better results in one place, all work of this character is done there.

By co-operative selling it is possible for one factory to sell in places where it would otherwise be possible to sell only at a prohibitive cost. Not only does this saving benefit the purchaser, but the service that

WE HAVE conducted
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VERTISEMENT

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Revolutionizing Motor Car Standards

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refore earnestly request you to read every word on this page. It marks the beginning of a new epoch in motor car history—the establishment of new automobile standards—the attainment of which was only possible through the co-operation and organization realized in the formation of this company.

We manufacture one-fourth of all the motor cars made in the United States and one-sixth of all the cars made in the world. We control all our manufacturing processes.

ars Made by United States Motor Company Organizations

Ranging in Price from $450 to $8000

BRUSH, formerly $485, is now **$450**
This is the standard runabout, model E

Roadster, Model E 26, formerly $600, now with equipment extra **$485**

MAXWELL, 16 H. P. runabout **$600**
This **Model AB Runabout** now includes $70 equipment, consisting of top, gas lamps and generator, at the former $600 price.

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Model EA, 30 H. P., fore-door touring car, formerly $1600, equal to any car in the $1500 to $1800 class, now **$1350**

SAMPSON 35, touring car, a recent addition to our line, is listed at a price to command instant attention . . . . . **$1250** to **$1325**

STODDARD-DAYTON models, from **$1175** to **$4800**
These models are all unchanged in price, but in every case show worth higher than the 1910 models. The **50 H. P. Stoddard-Dayton** is distinguished by exceptional refinements.

COLUMBIA, a new model, for **$3500**
Higher powered and more exquisite finish at a slightly higher price than formerly.

Both **Stoddard-Dayton** and **Columbia** cars stand for the limit of motor car excellence and luxury regardless of price. No better cars can be made until the world's engineering knowledge is enlarged and the skill of its craftsmen is heightened.

BRUSH DELIVERY, formerly $685, now . . **$650**
This is the 600-pound delivery wagon.

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And this organization is owned by upward of a thousand stockholders scattered all over the country; is operated on a co-operative basis, with all our employees working whole-heartedly for our success and sharing in our prosperity, while the executive management is based on military dicipline. No one man, no clique, holds the majority of the stock. Our stock can be bought in the open market by any one, therefore "control" depends only on efficiency.

IN BUYING raw material we are able, by massing our purchases, to secure lower prices and maintain higher quality. By interchange of experience in our engineering department, we avoid costly mistakes and produce better cars. Our original investigations which produce improvements cost little when distributed over our vast product. An improvement in method is introduced immediately in all our plants.

If particular skill and equipment produce better results in one place, all work of this character is done there.

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WE HAVE conducted this getting-ready process persistently and patiently, untroubled by temporary or local conditions in the industry. While others were cutting prices to dispose of old stock or left-over cars, or to raise cash, we said nothing; we were not ready. We have now reached the point where the fruit of our effort can be given to the buyer without sacrificing the interests of our stockholders.

We make a profit at these new prices. Had we needed to unload we would have announced them four months ago. We have no left-over cars, no old stock to work up. As a matter of fact, our shipments for three months ending November 30 were 57½ per cent. greater than for the same period in 1909.

The season for the heaviest buying is now just about to open. Over ninety-five per cent. of our product is already contracted for with deposits. Every indication points to a shortage of our cars this Spring.

Nevertheless, by basing our prices on a cost which is lowered by legitimate saving, made possible through the benefits of co-operative organization, we are estabnew schedule of prices, effective now. This announcement has appeared in the newspapers of forty-nine cities. The automobile world—the entire reading public—will be amazed that this announcement, involving as it does lower prices for 1911 models, is made during the New York Show, which is the signal for heavy buying to begin.

We therefore earnestly request you to read every word

in motor car history—the establishment of ne mobile standards—the attainment of which wa possible through the co-operation and organi realized in the formation of this company.

We manufacture one-fourth of all the moto made in the United States and one-sixth of a cars made in the world. We control all our facturing processes.

Cars Made by United States Motor Company Organization

Ranging in Price from $450 to $8000

BRUSH, formerly $485, is now **$450**
This is the standard runabout, model E

Roadster, Model E 26, formerly $600, now with equipment extra **$485**

MAXWELL, 16 H. P. runabout **$600**
This **Model AB Runabout** now includes $70 equipment, consisting of top, gas lamps and generator, at the former $600 price.

Model Q, 22 H.P., 4 cylinder, formerly $900, now **$750**

Model I, 25 H.P., fore-door touring car, formerly $1100, equal to any car in the $1250 class, now **$950**

Model EA, 30 H. P., fore-door touring car, formerly $1600, equal to any car in the $1500 to $1800 class, now **$1350**

SAMPSON 35, touring car, a recent addition to our line, is listed at a price to command instant attention . . . . . . **$1250** to **$1325**

STODDARD-DAYTON models, from **$1175** to **$4800**
These models are all unchanged in price, but in every case show worth higher than the 1910 models. The **50 H. P. Stoddard-Dayton** is distinguished by exceptional refinements.

COLUMBIA, a new model, for **$3500**
Higher powered and more exquisite finish at a slightly higher price than formerly.
Both **Stoddard-Dayton** and **Columbia** cars stand for the limit of motor car excellence and luxury regardless of price. No better cars can be made until the world's engineering knowledge is enlarged and the skill of its craftsmen is heightened.

BRUSH DELIVERY, formerly $685, now . . **$650**
This is the 600-pound delivery wagon.

SAMPSON TRUCKS, 1000 pound delivery motor, 1 ton, 2 ton, 3 ton, 4 ton, 5 ton trucks, and 20 to 40 ton road trains, ... **$1150** to **$8000**

GRAY Marine and Stationary Engines—Recognized as standard all over the world.

18 Plants—Capacity 52,000 Cars—52 Models—14,000 Employees—34 Branches—Deale. Every

THIS readjustment of values is the logical result of the original plan, policy and ideal to which the United States Motor Company owes its birth. Patiently and persistently we have worked to this end—harmonizing, organizing, specializing—always seeking to increase the efficiency of our organization, to improve the quality of our product—always with the ultimate aim in view—the attainment of an unquestioned leadership, because deserved.

The United States Motor Company is composed of 11 constituent companies—each the leader of its class. It operates eighteen separate factories, with a combined floor space of 49 acres. It employs 14,000 skilled artisans and a corps of original investigators, the benefit of whose work is shared by all the companies alike. The individual genius which built up each successful constituent company still directs it, but spurred by friendly rivalry to greater exertion. The broad plans and policies of the parent company are outlined and executed in the fulness of the combined experience of these men.

The product of these companies includes 52 different models—cars designed for every need, utility and pleasure vehicles, for passenger and freight carriage. They range in price from $450 to $8000.

OUR selling organization embraces 34 branch houses and dealers everywhere. This distribution not only enables us to dispose of our product at the lowest selling cost, but it permits us to provide a service organization to maintain these cars in the hands of owners that cannot be duplicated by any other company.

And this organization is owned by upward of a thousand stockholders scattered all over the country; is operated on a co-operative basis, with all our employees working whole-heartedly for our success and sharing in our prosperity, while the executive management is based on military dicipline. No one man, no clique, holds the majority of the stock. Our stock can be bought in the open market by any one, therefore "control" depends only on efficiency.

IN BUYING raw material we are able, by massing our purchases, to secure lower prices and maintain higher quality. By interchange of experience in our engineering department, we avoid costly mistakes and produce better cars. Our original investigations which produce improvements cost little when distributed over our vast product. An improvement in method is introduced immediately in all our plants.

If particular skill and equipment produce better results in one place, all work of this character is done there.

By co-operative selling it is possible for one factory to sell in places where it would otherwise be possible to sell only at a prohibitive cost. Not only does this saving benefit the purchaser, but the service that can be rendered to the owner after purchase could not be given in this locality by any other plan at any practical expense.

WE HAVE conducted this getting-read persistently and patiently, untroubl porary or local conditions in the While others were cutting prices to dispo stock or left-over cars, or to raise cash, we ing; we were not ready. We have now re point where the fruit of our effort can be gi buyer without sacrificing the interests of holders.

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In the preparation of this advertisement I have been keenly interested. I have gone over every item point by point from your point of view as well as from mine. I am satisfied with it. I vouch for its truth, for the sincerity of purpose and for every single statement of fact which it contains. I commend it to your attention. I ask for your order.

Benj. Briscoe *President*

United States Motor Company

**Broadway and 61st Street
New York City**

All Our Cars Are Licensed Under Selden Patent

**Maxwell-Briscoe Motor Company
Providence Engineering Works
Alden Sampson Manuf't'ing Company**

**Dayton Motor Car Company
Brush Runabout Company
Westchester Appliance Company**

**Columbia Motor Car Company
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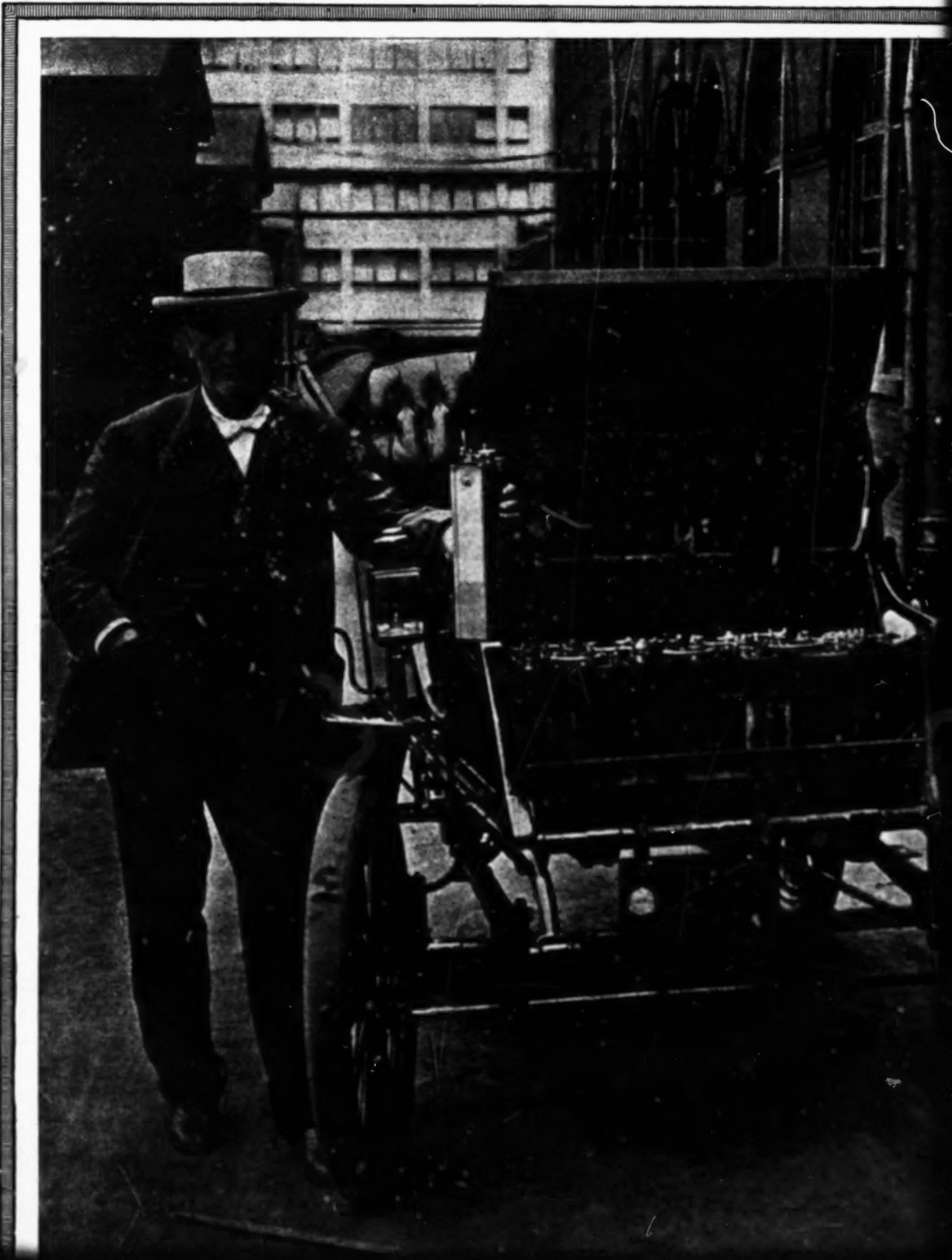
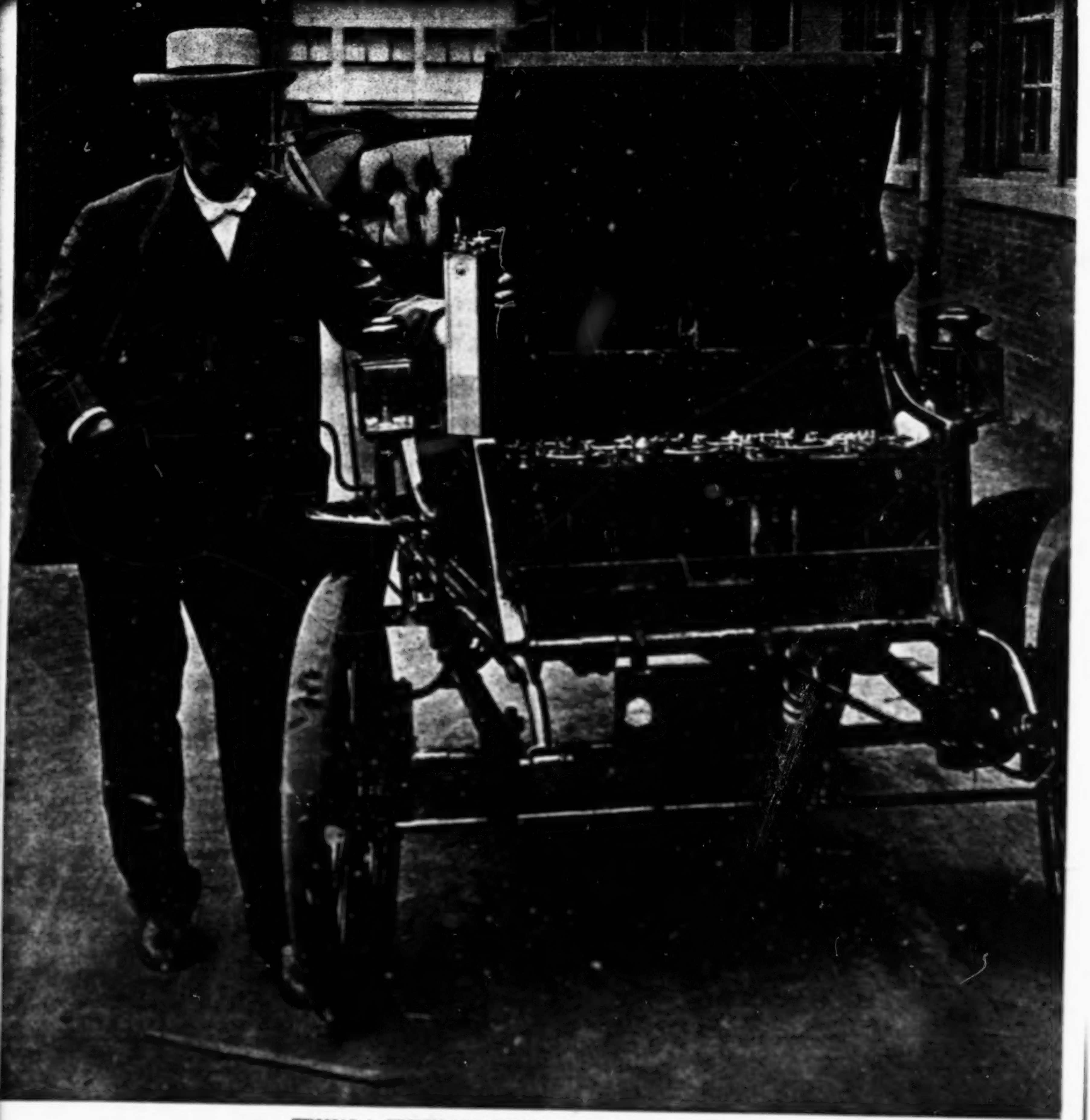
EDISON'S BATTERY





THOMAS A. EDISON AND HIS IMPROVED STORAGE BATTERY

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Overland

Mechanical Excellence of this 30-Horsepower Touring Car

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The transmission is of the selective type—three speeds and reverse. The speed changing, final drive, and differential gears are contained in the rear axle unit.

A smoother, more delicate, and at the same time more positive clutch than the Overland cone clutch does not exist. It is of such design and construction that in starting the car there is never a shock or jar. The facing is not lubricated. It is, therefore, unaffected by weather conditions.

This is the only car in its class provided with a five-bearing crank shaft. This crank shaft is dropped forged from one piece of carbon manganese steel and rotates in five bearings of unusually liberal peripheral area, ensuring quietness and extremely long life.

Lubrication is provided by a force feed mechanical oiler

Springs are of the semi-elliptic and three-quarter elliptic type. The rear springs are mounted on spring chairs that have a lubricated bearing on the rear axle tubes. This form of construction produces an easy-riding car, as it permits the springs to act freely.

Final drive is effected from the propeller shaft to the rear axle by means of accurately cut and carefully hardened bevel gears, the usual differential and two live axle shafts which drive the rear wheels. Special roller bearings are provided for all rotating components, and the bevel gears and pinion are of drop-forged nickel steel, cut in accurate Overland style, and scientifically heat treated.

We have tried to make this as brief as possible without omitting any of the essentials. It is the kind of information that shows you exactly what a car is worth.

We have published a book which we want you to read. It

Overland

The Mechanical Excellence of this
$900 30-Horsepower Touring Car

FAMILIARIZE yourself with the mechanical side of an automobile and you
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chassis is the backbone of an automobile and the more you know of this the
gently you can estimate a car's value in dollars and cents.

We have asked you to measure up the facts of this $900 car against the facts of any $1250 car on the market in order to show you the slight difference. Here we wish to acquaint you with the mechanical side of this car—to prove the thoroughness and fineness of its entire construction. And the mechanical excellence of this $900 thirty horsepower touring car is best explained by a brief synopsis of the facts covering its construction.

The motor is a four-cylinder, four-cycle type of Overland design and manufacture. Cylinders are cast singly and have large water jackets. Crank shafts, connecting rods and other motor forgings are made of high carbon *manganese* steel. The motor is suspended from three points on the main frame, and is constructed in its entirety with a view to accessibility of all parts.

Valves are of the mushroom type and interchangeable, made from 35% nickel steel heads, electrically welded to carbon steel column gear is placed in such a manner as to minimize stresses and vibrations.

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actuated by the cam shaft.

Wheels are of heavy artillery type of special construction and equal to those used on the most expensive cars.

Front axles are of the I-beam section type, drop-forged in one piece, heat-treated in the most approved manner in our own factories, and capable of withstanding the severest road shock.

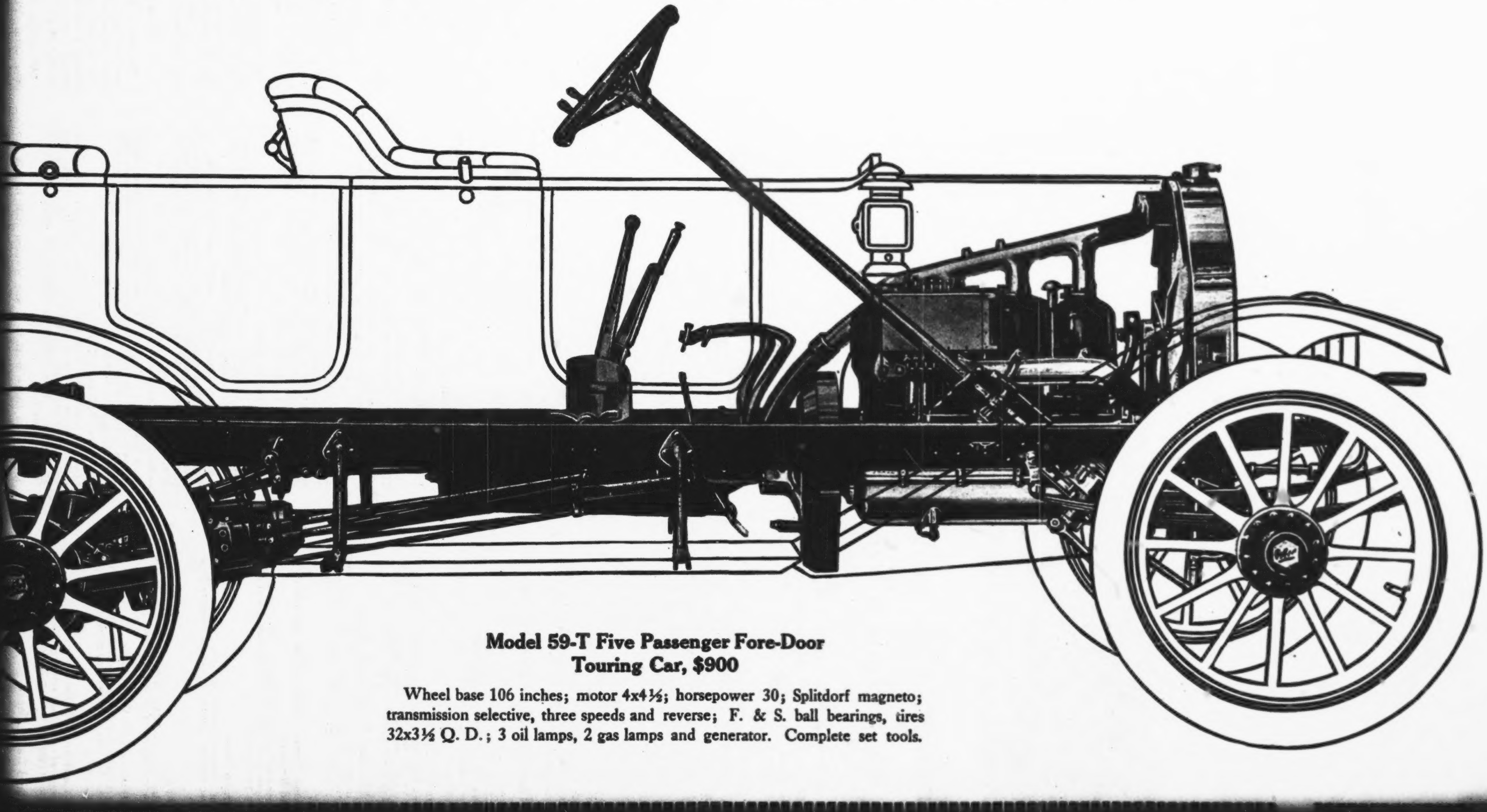
Brakes are particularly large and have ample friction areas. There are two brakes on each rear wheel, the inside or foot-brake which is internal expanding; the outside or emergency brake which is external contracting.

covers in detail every single part of this car. Not only what the construction is, but how each part is made—showing each factory operation from body to bolt.

Better let us send you one of these books. It is the most interesting and thorough work of its kind ever written and fully explains the ability of the greatest automobile plant in the world to make a car of the 30-horsepower, 5-passenger touring car type to sell at from 30% to 40% less money than any other similar car on the market.

Write to-day and ask for book F21.

The Willys-Overland Company, Toledo, Ohio



Model 59-T Five Passenger Fore-Door Touring Car, $900

Wheel base 106 inches; motor 4x4½; horsepower 30; Splitdorf magneto; transmission selective, three speeds and reverse; F. & S. ball bearings, tires 32x3½ Q. D.; 3 oil lamps, 2 gas lamps and generator. Complete set tools.

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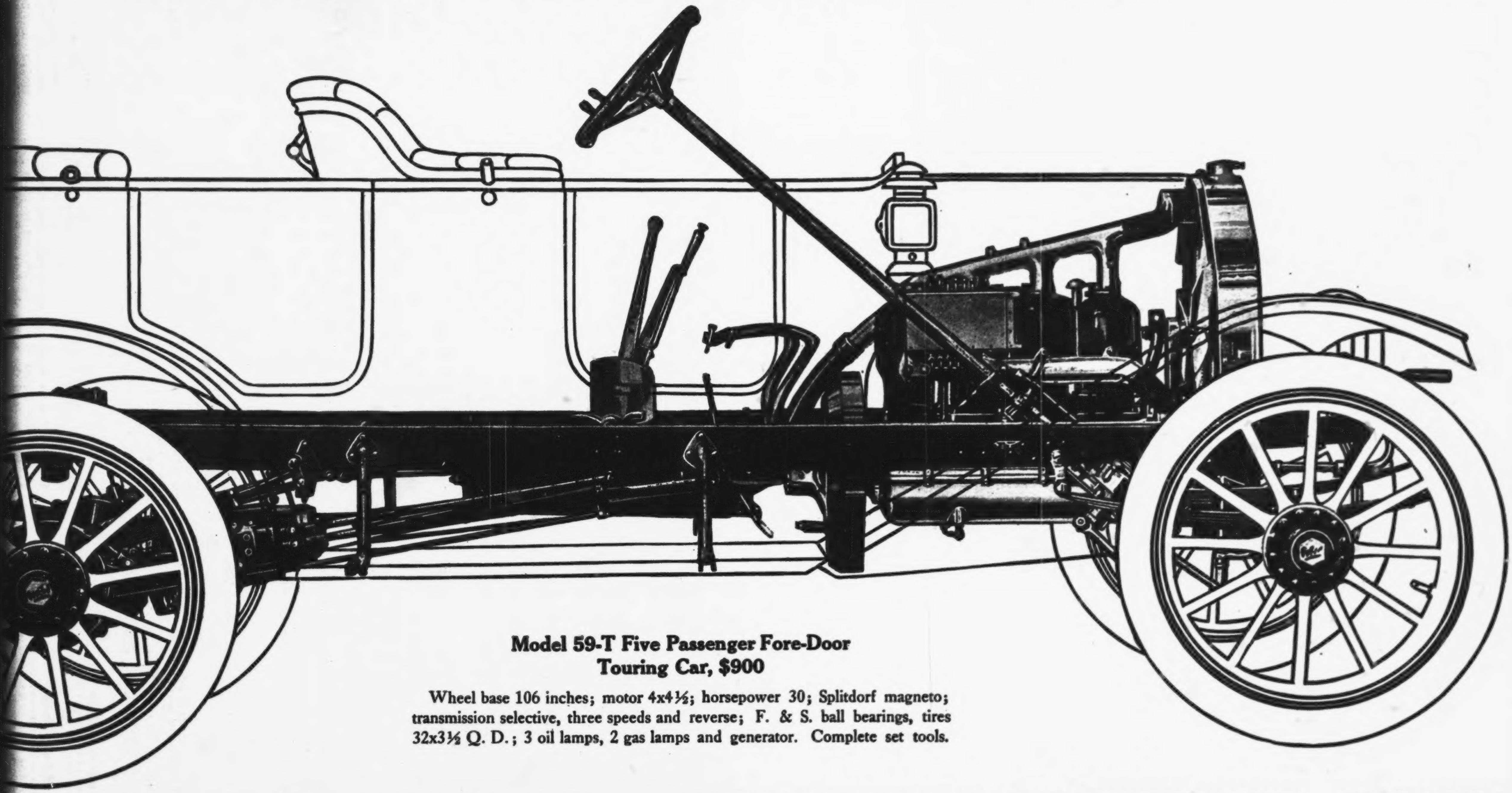

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stems. Their design and large size enable the motor to *develop* 15% *more horsepower* than any other motor of the same bore and stroke.

The radiator is of the famous Kinwood flat tube type. The radiating surface is unusually large, with large diameter intake and outlet openings.

The frame is constructed of cold rolled pressed steel, formed in channel sections of effective design, great strength and stability.

Steering gears are of worm and worm-gear type. The steering connecting rod between the steering knuckles and steering actuated by the cam shaft.

Wheels are of heavy artillery type of special construction and equal to those used on the most expensive cars.

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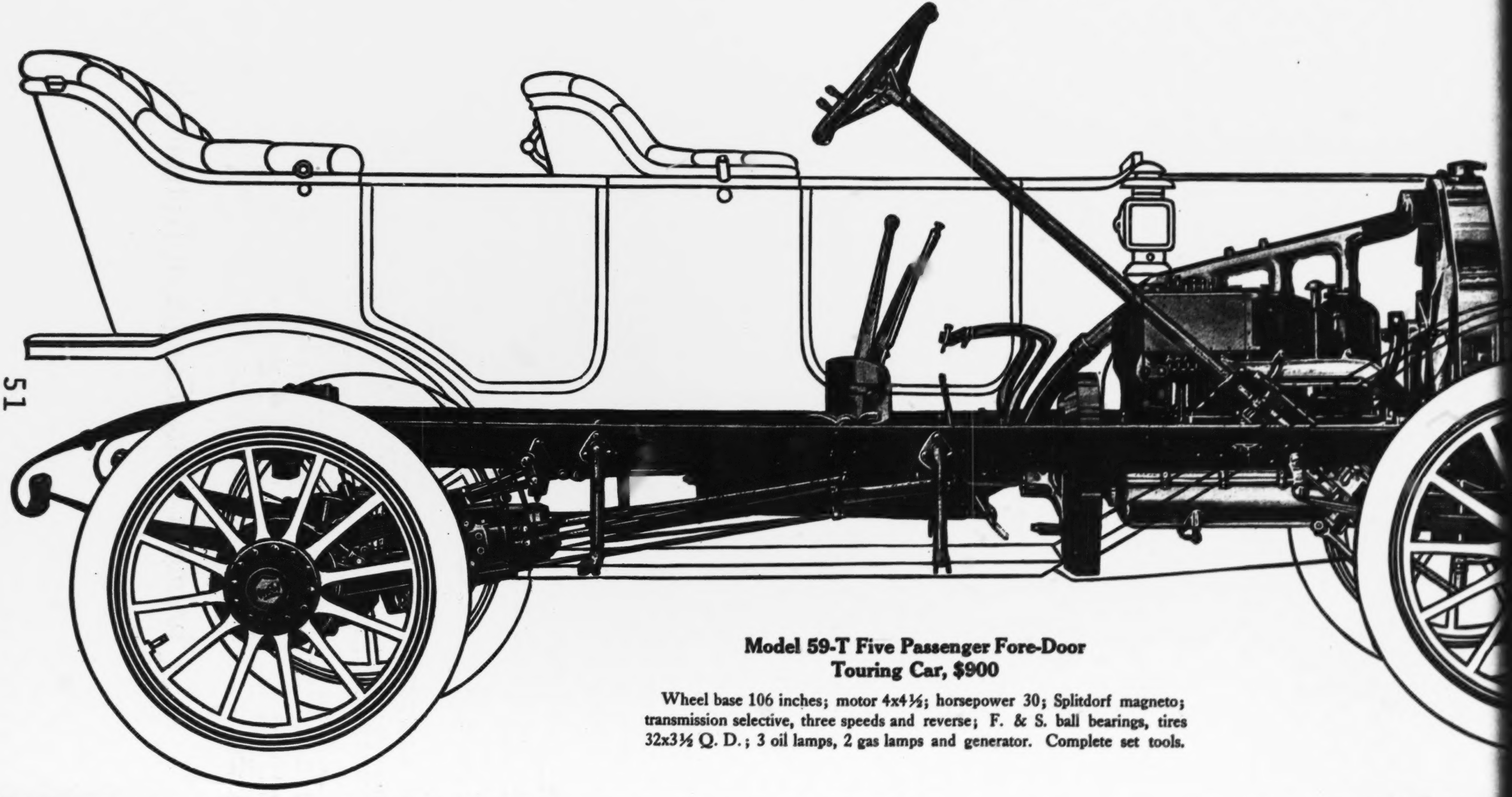

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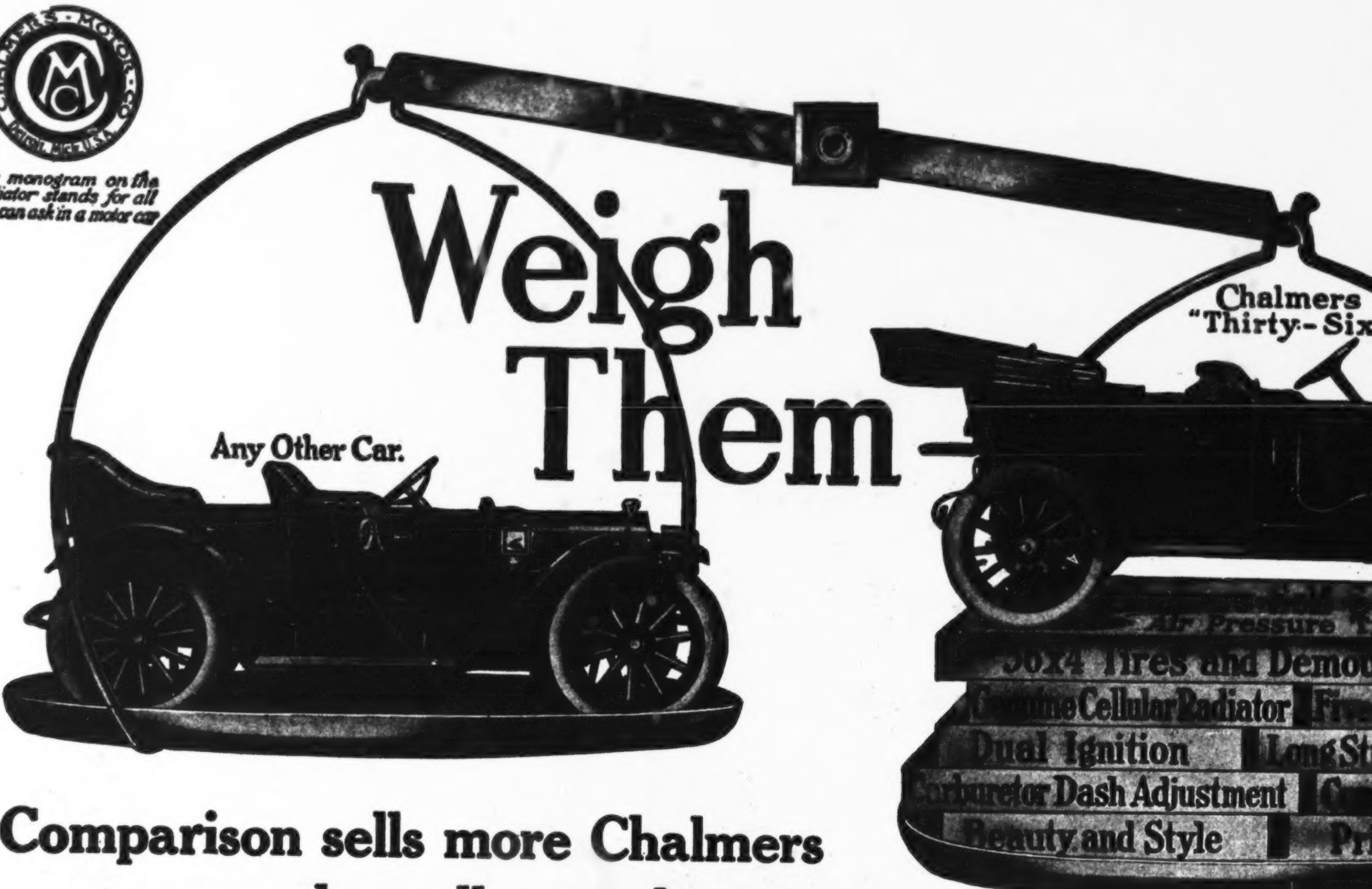
This monogram on the radiator stands for all you can ask in a motor car



Comparison sells more Chalmers cars than all our advertising

YOU will buy the car that has the most features designed for ***your*** convenience, ***your*** comfort, ***your*** safety, ***your*** economy and ***your*** pride of ownership.

Some cars seem to be built to please the builder. You want one that was built to please the buyer—for you are a buyer. You will use the car. You will find out from day to day whether it is thoroughly convenient to operate and use. You will find out whether it is perfectly comfortable under all conditions; perfectly safe; consistent; economical.

Therefore we refer you to the diagram above. Chalmers "Thirty-Six" is a car for the buyer. Look over the entire motor field and see if you can get these "Thirty-Six" features in any other car at $1800. See if you can get all of them in any other car at any price.

Why They Bought "Thirty-Sixes"

We have delivered more than 2000 of the "Thirty-Sixes." During the last few weeks we have been asking many of the owners to tell us the principal reasons why they bought the "Thirty-Six." Everybody seems to agree on these ten big reasons:

1. **Chalmers Self-Starter**

   Does away with cranking. Adds at least $500 to the value of an automobile. Simple, safe, efficient, air pressure type. Nothing complicated—just press a button on the dash and away goes your motor.

2. **36" x 4" Tires and Demountable Rims**

   Big tires insure ease of riding and reduce tire trouble to the minimum. Demountable rims rob punctures of their terrors—a change can be made in two or three minutes.

3. **Five Speed Transmission—Four Speeds Forward and Reverse**

   Affords utmost flexibility of control. With it you can climb steepest grades without loss of time and without punishing your motor.

4. **Long Stroke Motor**

   Maximum power at low engine speed, splendid pulling, longer service, greater quietness, freedom from

9. **Beauty and Style**

   Chalmers symmetry is the kind of beauty that means efficiency. You cannot find a car at any price with greater beauty of line. Finish is superb—18 coats of paint and varnish. Choice of three attractive color schemes.

10. **Price—$1800**

    Because of the features listed above and a score of other advantages; because of perfect design, high-grade material and workmanship of the Chalmers standard, the "Thirty-Six" offers the greatest value for the money of any motor car built.

The Biggest Chalmers Year

From time to time in the past it has been our pleasure to quote from those in the automobile trade, and the public generally, a commonly heard expression, "This is another Chalmers year."

At the time of writing this advertisement, with half the 1912 season gone, we are pleased to be able to vary this quotation and say, "This is the biggest Chalmers year of all." Since July 1st we have shipped 42% more cars than during the same period last year and last year was a good year too.

We believe that this phenomenal business is due to the fact that the cars we have shipped in previous seasons have been holding up and giving good service and that we are now reaping the results of building, from the first, really good cars at medium prices.

Read What Owners Say

As stated above we have delivered more than 2,000 of the "Thirty-Sixes." These cars have now been tested in owners' hands in all parts of the country; in various altitudes; in diverse climates; on all sorts of roads. Everywhere they have made good. Read a few typical letters:

John L. Jones, Counsellor at Law, New York City.

The new features of the "Thirty-six" are fine. The long stroke motor gives so much power that I can't see where anyone could desire more. The four speed transmission makes it an ideal touring car, for you can negotiate any hill or road without heating your engine. The self-starter works perfectly.

George B. Poole, Boston, Mass.

The "Thirty-six" is not only a fine looking car but everything about it is solid and carefully built. It has plenty of power and speed and is one of the easiest riding cars I ever sat in.

W. R. Leonard, Supt. American Car and Foundry Co., Detroit.

The Cha

"It runs

Seven passenger To
Four p

54 horsepower
pressure type
36"x4½" tires;
rims; ten inch
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brakes; nickel
sheet aluminum

The Chalmers
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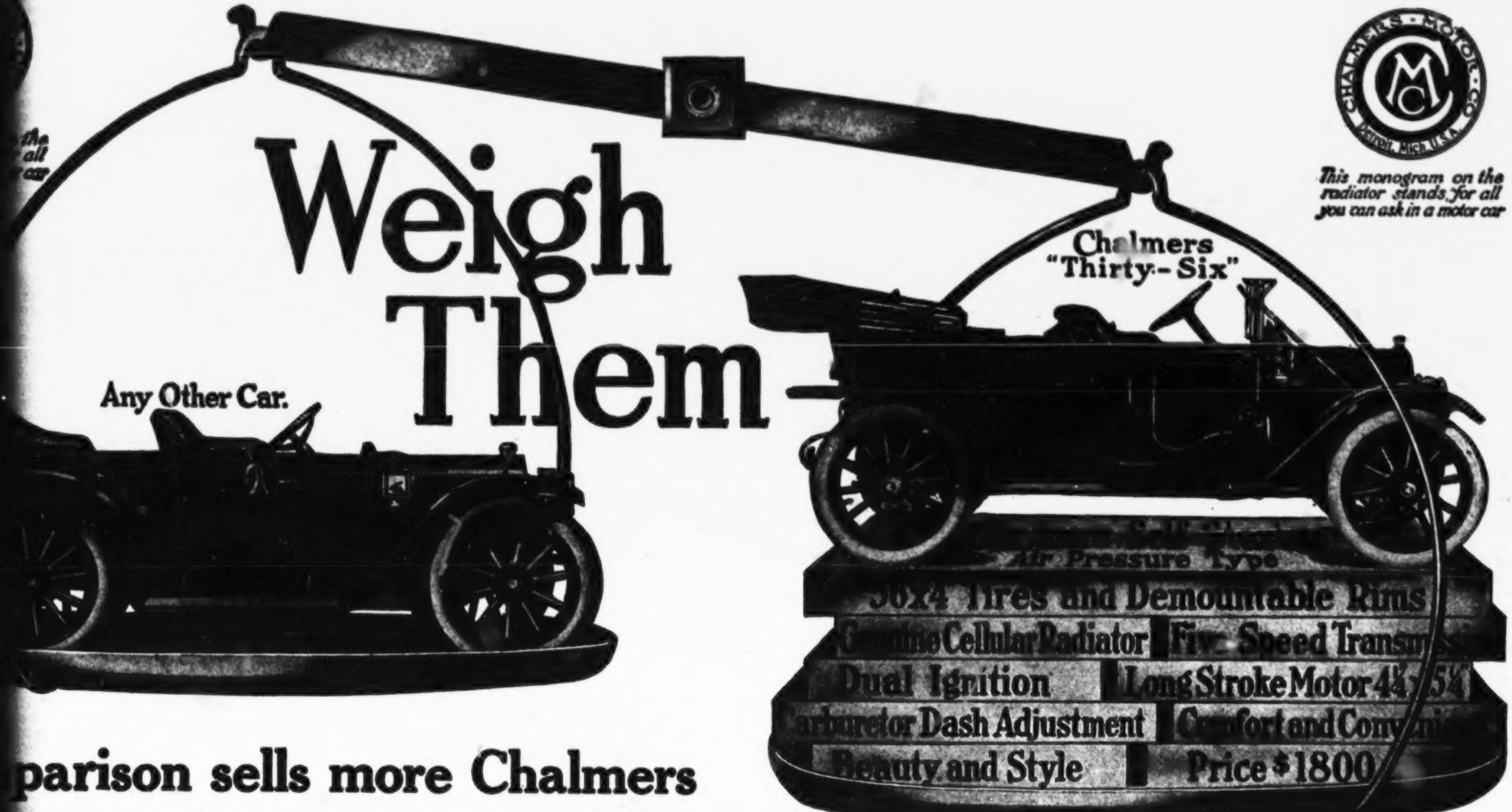

This monogram on the radiator stands for all you can ask in a motor car

parison sells more Chalmers cars than all our advertising

ill buy the car that has the most fea- designed for ***your*** convenience, ***your*** ort, ***your*** safety, ***your*** economy and of ownership.

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They Bought "Thirty-Sixes"

livered more than 2000 of the "Thirty-Sixes." t few weeks we have been asking many to tell us the principal reasons why they Thirty-Six." Everybody seems to agree on reasons:

ers Self-Starter

way with cranking. Adds at least $500 to the of an automobile. Simple, safe, efficient, air re type. Nothing complicated—just press a on the dash and away goes your motor.

4" Tires and Demountable Rims

es insure ease of riding and reduce tire trouble minimum. Demountable rims rob punctures of errors—a change can be made in two or three .

Speed Transmission—Four Speeds For- and Reverse

utmost flexibility of control. With it you can teepest grades without loss of time and without ing your motor.

troke Motor

power at low engine speed, splendid pull-

9. **Beauty and Style**

   Chalmers symmetry is the kind of beauty that means efficiency. You cannot find a car at any price with greater beauty of line. Finish is superb—18 coats of paint and varnish. Choice of three attractive color schemes.

10. **Price—$1800**

    Because of the features listed above and a score of other advantages; because of perfect design, high-grade material and workmanship of the Chalmers standard, the "Thirty-Six" offers the greatest value for the money of any motor car built.

The Biggest Chalmers Year

From time to time in the past it has been our pleasure to quote from those in the automobile trade, and the public generally, a commonly heard expression, "This is another Chalmers year."

At the time of writing this advertisement, with half the 1912 season gone, we are pleased to be able to vary this quotation and say, "This is the biggest Chalmers year of all." Since July 1st we have shipped 42% more cars than during the same period last year and last year was a good year too.

We believe that this phenomenal business is due to the fact that the cars we have shipped in previous seasons have been holding up and giving good service and that we are now reaping the results of building, from the first, really good cars at medium prices.

Read What Owners Say

As stated above we have delivered more than 2,000 of the "Thirty-Sixes." These cars have now been tested in owners' hands in all parts of the country; in various altitudes; in diverse climates; on all sorts of roads. Everywhere they have made good. Read a few typical letters:

John L. Jones, Counsellor at Law, New York City.

The new features of the "Thirty-six" are fine. The long stroke motor gives so much power that I can't see where anyone could desire more. The four speed transmission makes it an ideal touring car, for you can negotiate any hill or road without heating your engine. The self-starter works perfectly.

George B. Poole, Boston, Mass.

The "Thirty-six" is not only a fine looking car but everything about it is solid and carefully built. It has plenty of power and speed and is one of the easiest riding cars I ever sat in.

W. R. Leonard, Supt. American Car and Foundry Co., Detroit.

The Chalmers "SIX"

"It runs with eagerness"

Seven passenger Touring
Four passenger Torpedo $3250

54 horsepower; Chalmers self-starter, air pressure type; 130 inch wheel base; 36"x4½" tires; Continental demountable rims; ten inch upholstering; nickel steel axles and rear axle housing; extra large brakes; nickel steel frame side members; sheet aluminum bodies.

The Chalmers "Six" is a high powered, mechanically perfected, luxurious car at a price lower than the motoring public has been accustomed to pay for the qualities this car possesses.

We are quite certain our "Six" is one of the very finest cars ever produced.

We sincerely believe that the "Six" is a better motor car than many which sell for higher prices. Any manufacturer who makes this claim is sure to be asked two questions: First, why are you able to do it? Second, why are you willing to do it?

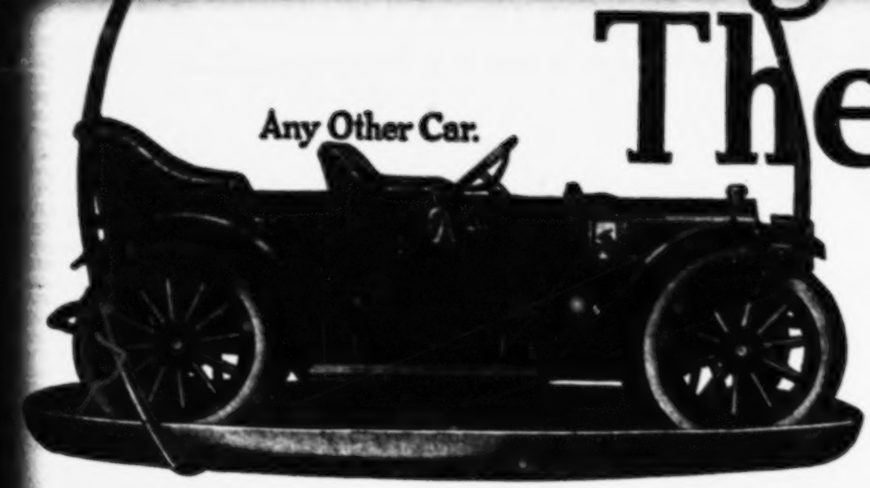
Here's The Answer

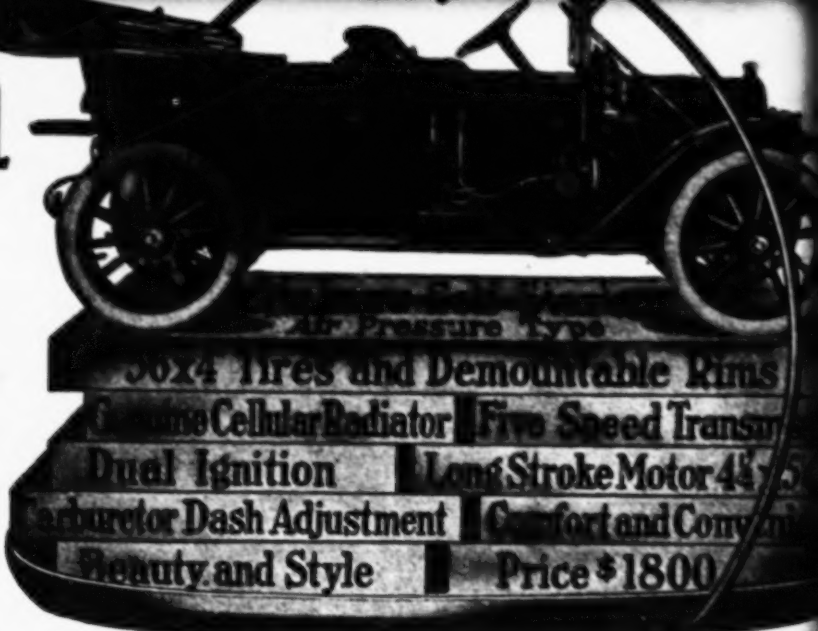
In answer to the first question, we say: We can do it because we have the factory, the organization and the "know how."

Large production cuts down overhead expense. Good design, modern machinery and up-to-date methods cut down manufacturing expense. We build cars in sufficient quantities to reduce overhead expense to the minimum. Our factory is equipped with the most up-to-date machinery and labor-saving devices.

We get the advantage of buying materials in large quantities. We take every cash discount offered. We know that we can build a high grade, high powered car, using the same quality of

Them


Any Other Car.



Comparison sells more Chalmers cars than all our advertising

YOU will buy the car that has the most features designed for ***your*** convenience, ***your*** comfort, ***your*** safety, ***your*** economy and ***our*** pride of ownership.

Some cars seem to be built to please the uilder. You want one that was built to please he buyer—for you are a buyer. You will use he car. You will find out from day to day whether it is thoroughly convenient to operate nd use. You will find out whether it is perfectly omfortable under all conditions; perfectly safe; onsistent; economical.

Therefore we refer you to the diagram above. Chalmers "Thirty-Six" is a car for the buyer. Look over the entire otor field and see if you can get these "Thirty-Six" features any other car at $1800. See if you can get all of them in ny other car at any price.

Why They Bought "Thirty-Sixes"

We have delivered more than 2000 of the "Thirty-Sixes." uring the last few weeks we have been asking many f the owners to tell us the principal reasons why they ought the "Thirty-Six." Everybody seems to agree on ese ten big reasons:

1. **Chalmers Self-Starter**
   Does away with cranking. Adds at least $500 to the value of an automobile. Simple, safe, efficient, air pressure type. Nothing complicated—just press a button on the dash and away goes your motor.
2. **36" x 4" Tires and Demountable Rims**
   Big tires insure ease of riding and reduce tire trouble to the minimum. Demountable rims rob punctures of their terrors—a change can be made in two or three minutes.
3. **Five Speed Transmission—Four Speeds Forward and Reverse**
   Affords utmost flexibility of control. With it you can climb steepest grades without loss of time and without punishing your motor.
4. **Long Stroke Motor**
   Maximum power at low engine speed, splendid pulling, longer service, greater quietness, freedom from vibration.
5. **Dual Ignition**
   Simplest ignition system yet devised. Nothing equals a magneto for furnishing perfect ignition.
6. **Dash Adjustment for Carburetor**
   You can get the proper mixture for starting or to suit varying weather conditions without getting out of car and lifting hood.
7. **Genuine Cellular Radiator**
   The sort you find on highest priced cars. None better made. Insures perfect cooling, longer life, good looks.
8. **Comfort and Convenience**
   Long wheel base, big wheels and tires, deep upholstering, roomy bodies make for maximum comfort. Convenience is secured by a score of refinements that will appeal to you when you see the car.
9. **Beauty and Style**
   Chalmers symmetry is the kind of beauty that means efficiency. You cannot find a car at any price with greater beauty of line. Finish is superb—18 coats of paint and varnish. Choice of three attractive color schemes.
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W. R. Leonard, Supt. American Car and Foundry Co., Detroit.

The Chalmers "Thirty-six" more than meets my expectation. I have accomplished everything that is possible with the highest priced cars in the way of high and slow speed, easy handling, hill-climbing, etc.

Charles N. Bird, Kansas City, Mo.

Since buying my "Thirty-six" I can't understand how anyone is willing to drive a car without a self-starter. It is the greatest addition to an automobile yet designed. With it and the demountable rims there is no unpleasant feature about motoring.

H. D. Wheat, Gaffney, S. C.

Chalmers "Thirty-six" is all right. The motor is flexible and a great puller, carrying the car up our steep Piedmont Hills on high gear without laboring at all. The control is simple. My 15 year old daughter drove from Gaffney to Charlotte, 60 miles, without the slightest trouble.

In view of these facts, is it any wonder that this is the biggest Chalmers year of all? So the time to place your order is now—and the earlier the date set for delivery the better. Our new catalog free on request.

The Chalmers "SIX

"It runs with eagerness"

Seven passenger Touring
Four passenger Torpedo $325

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What Good Value Does

To answer the second question: It has alwa been our policy to give unusually good valu Good value in the car cuts down selling expen and "service" expense after the sale. We ha always stood for small profits per car and ha gained our fair annual profit by doing a lar volume of business.

We invite the most careful comparison w other cars. The "Six"—and all other Chalme models—may be seen at the leading automob shows this winter. Special "Six" booklet request.

Chalmers Motor Company, Detroit, Mich.

ADVERTISEMENT

My Farewell Car

By R. E. Olds, Designer

Reo the Fifth—the car I now bring out—is considered by me as pretty close to finality.

So close that I call it "My Farewell Car." I shall let it stand as my topmost achievement.

Embodied here are the final results of my 25 years of experience.

I have spent 18 months on Reo the Fifth. For three months I stopped the whole Reo production to devote all of our efforts to this one car.

The future is bound to bring some minor changes—folderols and fashions. But in all the essentials this car strikes my limit.

Better workmanship is impossible, better materials unthinkable. More of simplicity, silence, durability and economy can hardly be conceived.

I consider this car about as close to perfection as engineers ever will get.

My 24th Model

This is the twenty-fourth model which I have created. My first was a steam car, built in 1887—25 years ago. My first gasoline car was built in 1895—17 years ago.

My whole life has been spent in building gasoline engines—the Olds Gas Engines, famous half the world over. My engine-building successes gave first prestige to my cars. For the motor, of course, is the very heart of a car.

So it came about that tens of thousands of motorists have used cars of my designing. They have run from one to six cylinders, from 6 to 60 horsepower. They have ranged from little to big, from the primitive to the modern luxurious cars. I have run the whole gamut of automobile experience.

In the process of sifting I have settled down to the 30 to 35 horsepower, 4-cylinder car. That is, and will doubtless remain, the standard type of car.

Greater power is unnecessary; its operation expensive. Weight, size and power not needed bring excessive cost of upkeep. Most men who know best, and who can own good cars, are coming to this standard type. So we make for the future just this one type of car.

And in this new car—called Reo the Fifth—I have embodied all I know which can add one iota to the real worth of a car.

My Thousand Helpers

But Reo the Fifth, despite all my inventions, belongs to other men more than to me. A thousand men have contributed to it. I have searched the whole world to secure for each part the very best that any man has discovered.

For that is the essence of motor car designing—to learn what is best and adopt it. No modern car owes more than a trifle to the genius of any one man.

So this car is not mine—it is merely my compilation. It shows my skill in selection—in picking the best—more than my skill in designing. It shows, above all, what my myriads of cars in actual use have taught me.

And I frankly confess that I owe a great deal to the many brilliant designers whom it has been my good fortune to associate with me.

Where This Car Excels

In Reo the Fifth you will find many good features found in no other car. You will find all the best features used in other up-to-date models. You will find them combined with style, finish and appearance which marks the very latest vogue.

But the vital advantages of this new car lie in excess of care and caution. In the utter exactness—in the big margins of safety.

One of the greatest lies in formulas for steel. I have learned by endless experiment —by countless mistakes—the
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But the vital advantages of this new car lie in excess of care and caution. In the utter exactness—in the big margins of safety.

One of the greatest lies in formulas for steel. I have learned by endless experiment—by countless mistakes—the best alloy for each purpose.

All the steel that I use is now made to my order. And each lot is analyzed to prove its accord with the formula. Experience has taught me not to take any chances.

I used to test gears with a hammer. Now I use a crushing machine of 50 tons capacity. And I know to exactness what each gear will stand.

I took the maker's word on magnetos at one time. Now I require a radical test, and I have found but two makes which will stand it.

The axles are immensely important. I use Nickel Steel of unusual diameter, and fit them with Timken Roller Bearings.

The carburetor is doubly heated—by hot air and hot water—for the present grades of gasoline.

The car is over-tired.

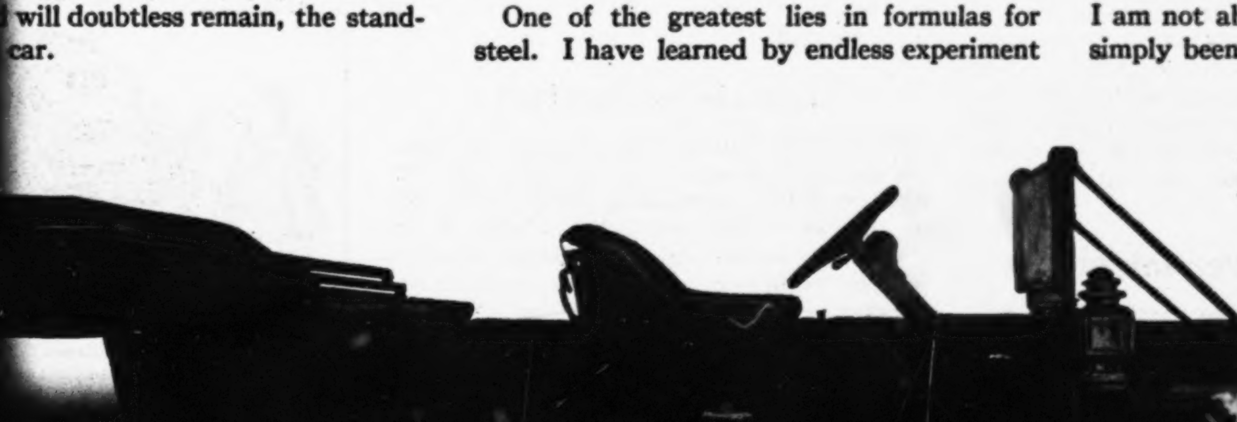
So with every part. From start to finish this car is built under laboratory supervision. The various parts pass a thousand inspections.

It is one thing to build a theoretical car, to meet all expected conditions. It is another thing to build one to meet actual conditions. The unusual and unexpected bring out a car's weakness.

The best thing I have learned, in these decades of experience, is the folly of taking chances.

I had one of these new cars run for ten thousand miles—run at top speed, night and day, on rough roads. That is equal, I figure, to three years' average usage. Then I took the car apart, and I found every important part in the whole car practically as good as new.

That's where this car excels—in that excess of caution taught by 25 years of experience. I am not abler than other designers. I have simply been learning longer.



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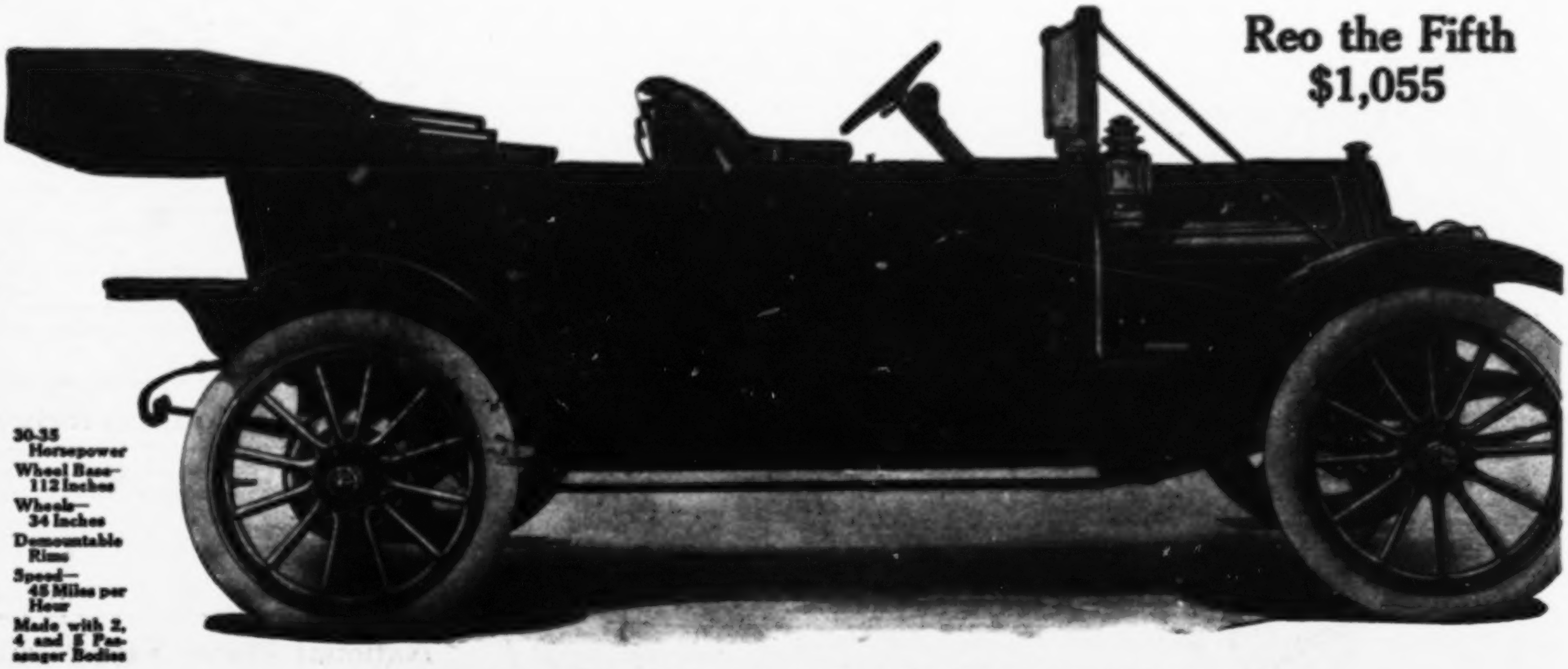


Reo the Fifth
$1,055

30-35 Horsepower
Wheel Base—112 Inches
Wheels—34 Inches
Demountable Rims
Speed—45 Miles per Hour
Made with 2, 4 and 5 Passenger Bodies

Top and windshield not included in price. We equip this car with mohair top, side curtains and slip-cover, windshield, gas tank and speedometer—all for $100 extra. Self-starter, if wanted, $25 extra.

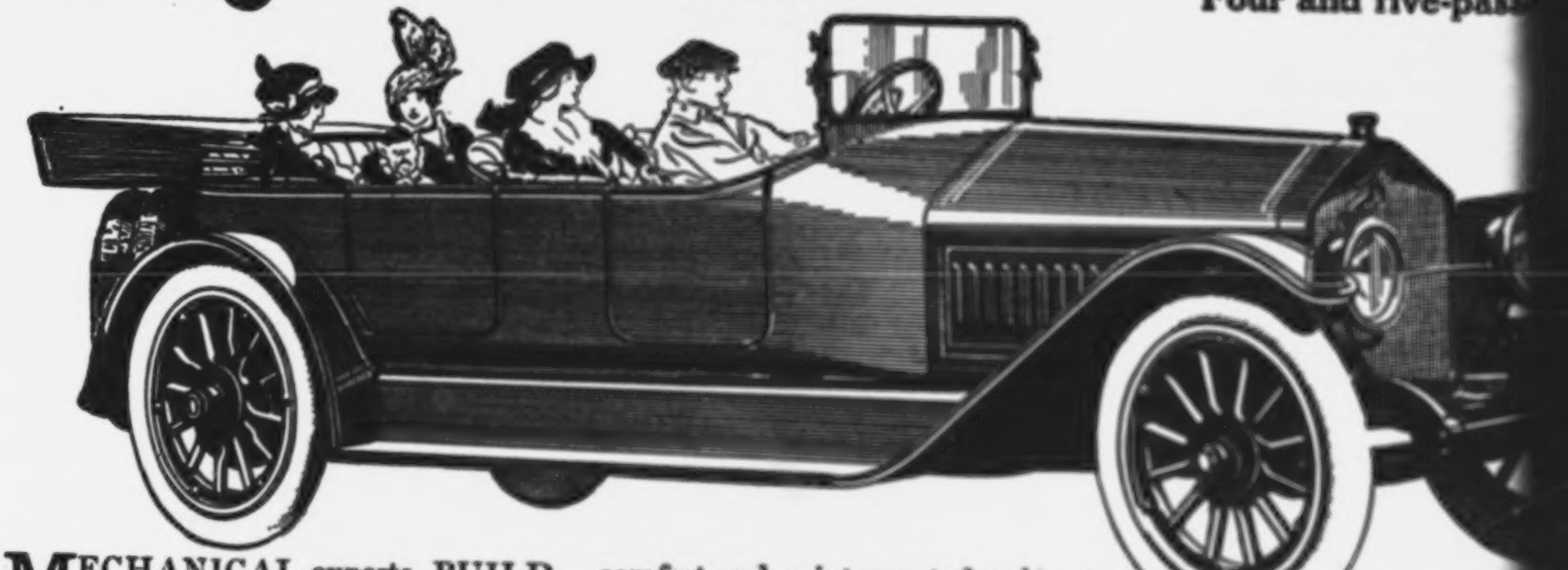
ADVERTISEMENT

Machinist or Motoris

You don't have to be a mechanical expert to safely buy a

National Six–$23

Four and five-pass



MECHANICAL experts BUILD *National* cars with fourteen years experience to guide them.

But women and men who do not claim to be authorities on machinery BUY *National* cars as safely as though they were experts. Motorists have faith in the company that builds and guarantees *National* cars, because the world-famed signature *National* is not only a name of a car but the mark of quality.

We welcome a detailed analysis of the *National;* we invite you to visit and inspect our factories. But what motorists demand today is service, confidence, comfort and uninterrupted enjoyment from their cars. If the car is built right, if the right materials are put in the right place, if the design is correct and the workmanship good, you can then avoid the work of "going over a car with a fine tooth comb." That way of buying a quality car is obsolete.

You can't find a better built car than the *National* if you use a microscope. We give you all you can possibly demand in a high-grade motor car, and give it to you with complete abandon of worry about what is under the hood or beneath the seat.

"You don't have to raise the hood"

NATIONAL owners have learned that we build *whole* cars—the name *National* is their guarantee. Every *National* car is built as a *unit*—every mechanical part operates harmoniously to produce satisfactory *results*. You leave the responsibility for its mechanical construction to our experience—forget that there are gears and mechanical parts in the car. Just rest in comfort and enjoy your ride with absolute confidence in your car.

You can buy over telephone

antee—not a mere job of wheels, axles, gears and parts. That's why you don't have to raise the hood to buy a *National* you know no better is made.

Lavish in comfort

THIS new *National* embodies all our internationally recognized principles of superiority. Beautiful, economical, efficient and lavish in comfort — this car is the climax of the *National's* success in car building since its

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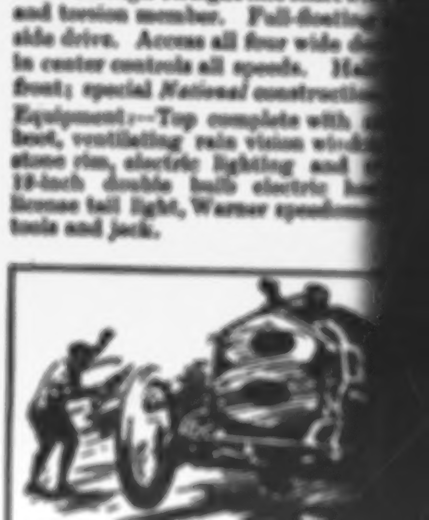
license tail light, Warner speedo
tools and jack.



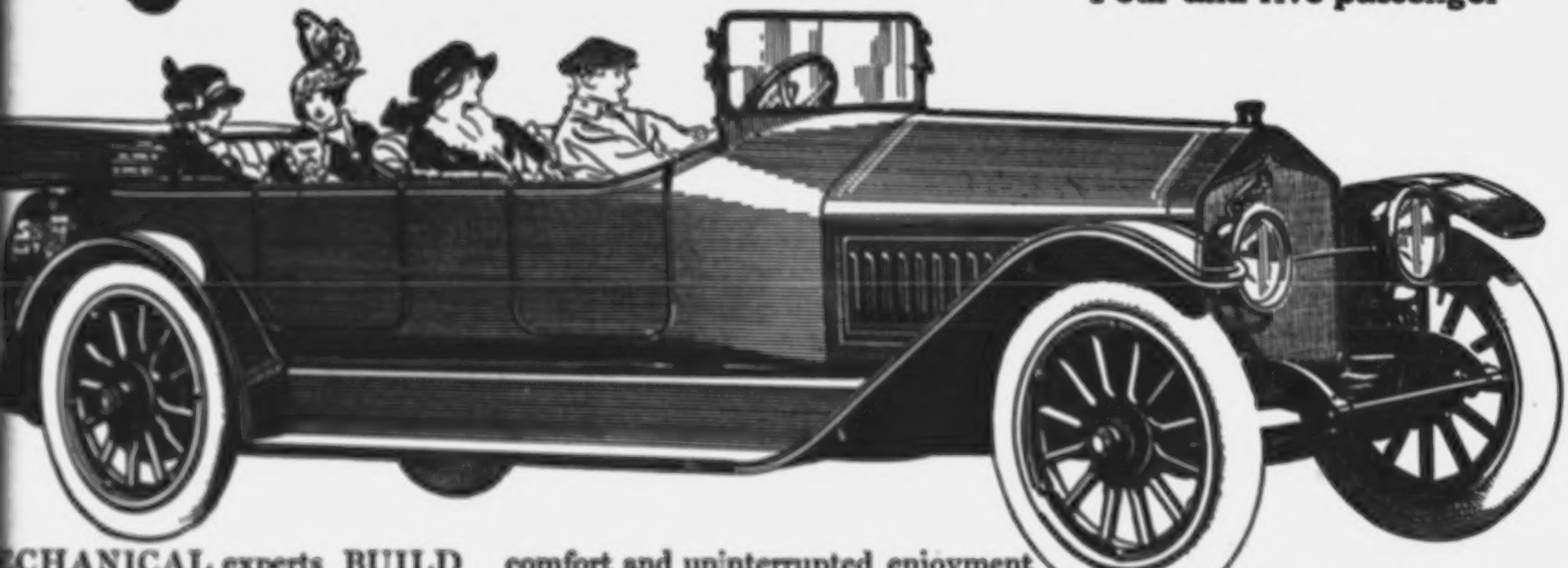
VERTISEMENT

Machinist or Motorist?

You don't have to be a mechanical expert to safely buy a

National Six—$2375

Four and five-passenger



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National cars with fourteen years
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comfort and uninterrupted enjoyment from their cars. If the car is built right, if the right materials are put in the right place, if the design is correct and the workmanship good, you can then avoid the work of "going over a car with a fine tooth comb." That way of buying a quality car is obsolete.

You can't find a better built car than the *National* if you use a microscope. We give you all you can possibly demand in a high-grade motor car, and give it to you with complete abandon of worry about what is under the hood or beneath the seat.

Brief Specifications— ***National* Six**

Motor, 6-cylinder, 3¾x5½-inch, cast en bloc. Tire pump, integral part of motor. Clutch, self-contained aluminum cone. Starting and lighting, electric two-unit system. Transmission, sliding gear selective type, three speeds forward, one reverse. Gauge, 56 inches. Oiling, crank-case constant level, force feed, with gear-driven pump. Ignition, high tension, dual magneto with storage battery. Tires, 36x4½. Firestone demountable rims. Air-pressure gasoline feed, generated by small pump in crank-case. Capacity, 23 gallons. Automatic carburetor. Two sets of brakes on 16-inch rear wheel drums. Bevel gear drive through straight line shaft with universal joints and torsion member. Full-floating rear axle. Left-side drive. Access all four wide doors. Single lever in center controls all speeds. Half elliptic springs, front; special *National* construction, rear.

Equipment:—Top complete with side curtains and boot, ventilating rain vision windshield, extra Firestone rim, electric lighting and starting systems, 12-inch double bulb electric headlights, electric license tail light, Warner speedometer, electric horn, tools and jack.

"You don't have to raise the hood"

ONAL owners have learned that we
ld *whole* cars—the name *National* is
rantee. Every *National* car is built as
—every mechanical part operates har-
ly to produce satisfactory *results.* You
e responsibility for its mechanical con-
to our experience—forget that there are
mechanical parts in the car. Just rest
rt and enjoy your *ride* with absolute
e in your car.

can buy over telephone

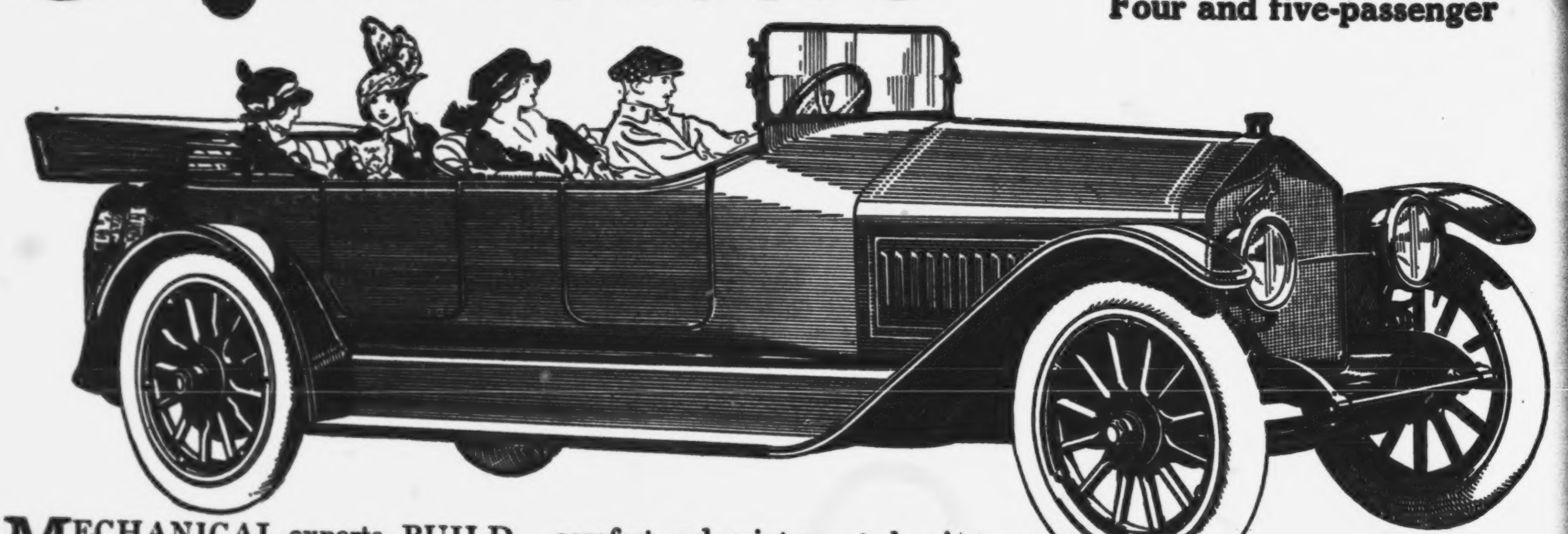
antee—not a mere job of wheels, axles, gears and parts. That's why you don't have to raise the hood to buy a *National* you know no better is made.

Lavish in comfort

THIS new *National* embodies all our internationally recognized principles of superiority. Beautiful, economical, efficient and lavish in comfort — this car is the climax of the *National's* success in car building since its pioneer beginning. It marks a most coveted

National Six—$2375

Four and five-passenger



MECHANICAL experts BUILD *National* cars with fourteen years experience to guide them.

But women and men who do not claim to be authorities on machinery BUY *National* cars as safely as though they were experts. Motorists have faith in the company that builds and guarantees *National* cars, because the world-famed signature *National* is not only a name of a car but the mark of quality.

We welcome a detailed analysis of the *National;* we invite you to visit and inspect our factories. But what motorists demand today is service, confidence, comfort and uninterrupted enjoyment from their cars. If the car is built right, if the right materials are put in the right place, if the design is correct and the workmanship good, you can then avoid the work of "going over a car with a fine tooth comb." That way of buying a quality car is obsolete.

You can't find a better built car than the *National* if you use a microscope. We give you all you can possibly demand in a high-grade motor car, and give it to you with complete abandon of worry about what is under the hood or beneath the seat.

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"You don't have to raise the hood"

NATIONAL owners have learned that we build *whole* cars—the name *National* is their guarantee. Every *National* car is built as a *unit*—every mechanical part operates harmoniously to produce satisfactory *results.* You leave the responsibility for its mechanical construction to our experience—forget that there are gears and mechanical parts in the car. Just rest in comfort and enjoy your ride with absolute confidence in your car.

You can buy over telephone

NATIONAL owners buy performance and not specifications—they can buy their new *Nationals* over the telephone. We sell our experience, ability, responsibility and our guarantee—not a mere job of wheels, axles, gears and parts. That's why you don't have to raise the hood to buy a *National* you know no better is made.

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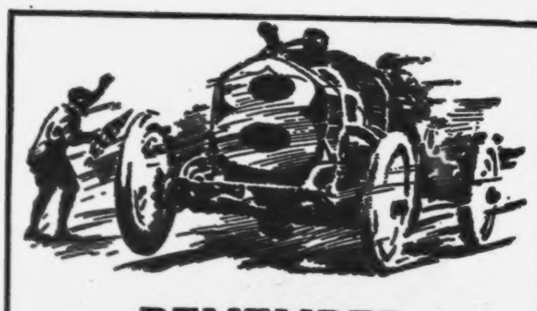
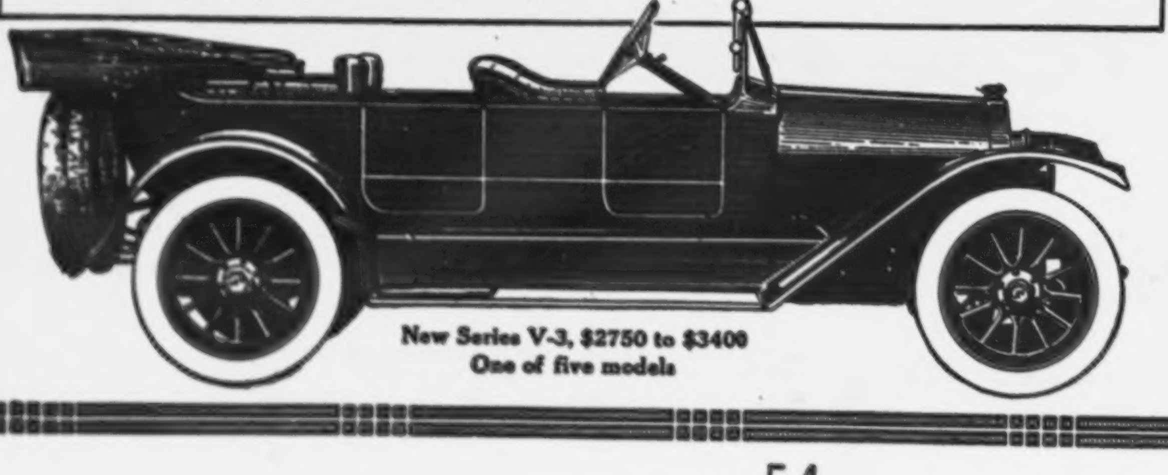


REMEMBER

When you say "*National*" you are talking about the world's champion car. The *National* is the World's Stock Champion; International Champion 500-mile race record holder; Fastest Mile for stock car record holder, etc. No other has ever equalled the *National* in actual performance and demonstration of its quality, power, speed, reliability and sureness.

The *National* 40 with its marvelous history, needs no introduction. This is our staple car—the highest achievement in automobile building. Here is the best all-aronnd motor car ever made. This is the third year for this successful car in all its essential features. This new series embodies all improvements and refinements.



New Series V-3, $2750 to $3400
One of five models

Send this Coupon today

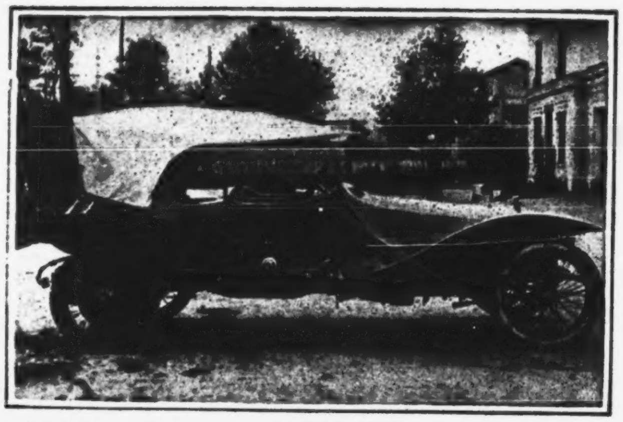
Gentlemen: Without obligation on my part, send me complete particulars of *National* cars.

Name ____________________

Address ____________________

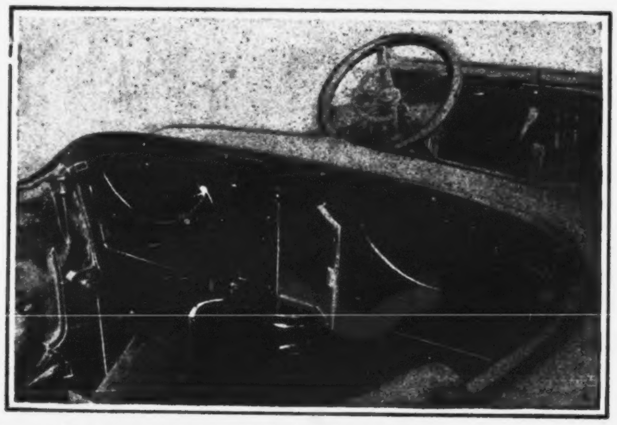
National Motor Vehicle Co.
Indianapolis, Ind., U.S.A.

CARS



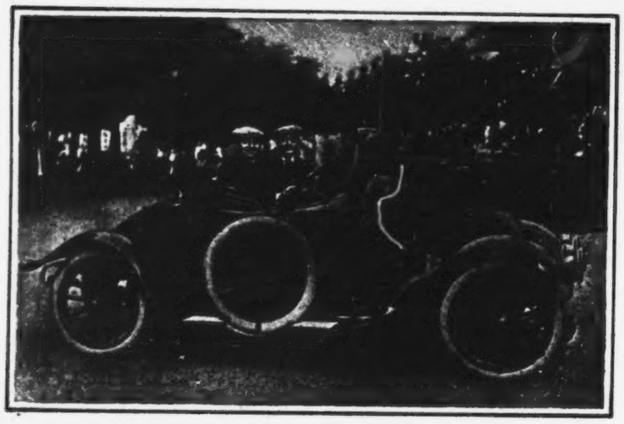
An interesting example of the "boat type" body.

The peculiar feature of the design lies in its ram-like forward lines and its torpedo stern; it is styled a skiff-torpedo and the body, though metal, is grained to represent wood. Lightness of construction evidently was sought, for running boards are missing and the mudguards are small.



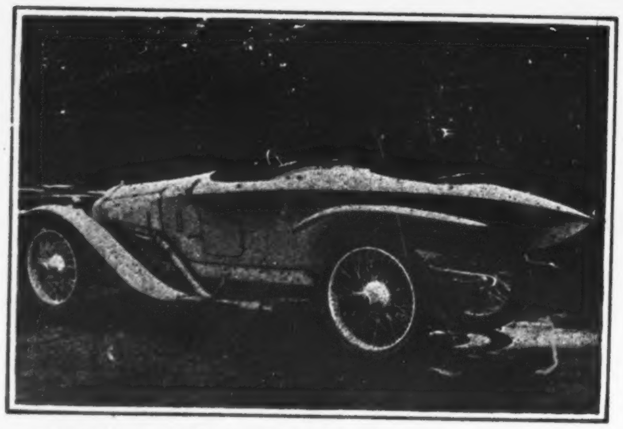
Ingenious storage spaces that satisfy a real demand.

To provide for the safe carrying of goggles, gloves and the hundred and one other motoring necessities is not always easy, though the designer of this body has not found it particularly difficult. In the average American car, storage space of the kind is unknown.



Side view of lately developed runabout model.

Compactness is the predominating feature of this vehicle which somewhat resembles a great black beetle, what with its sloping front and rear and its low-hung chassis. The provision of ventilators on the rear luggage compartment is unusual.



Another of the curious foreign "boat" bodies.

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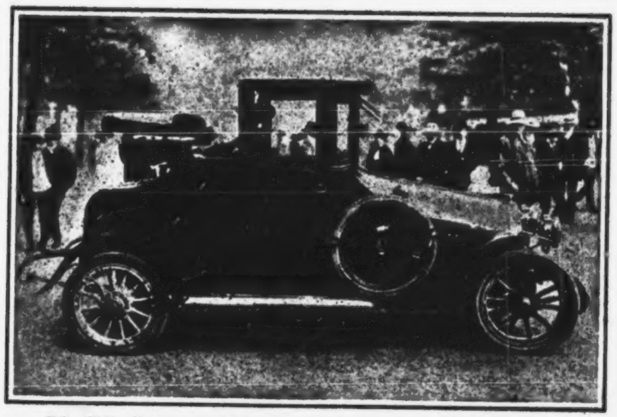
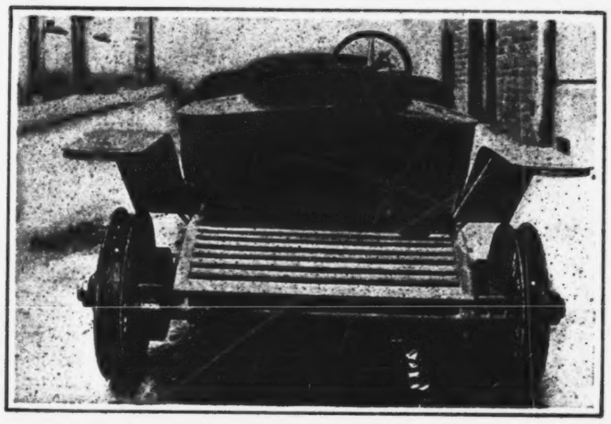


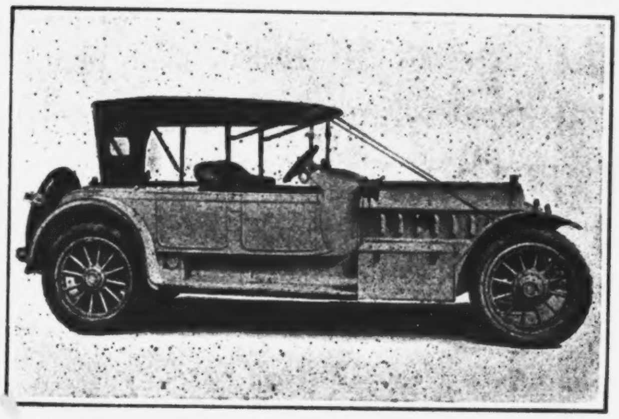
Modified type of two-passenger coupé model.

When closed, this body has much the appearance of a "conning tower." It is a good example of the European practice of sloping the engine hood sharply to blend with the lines of the deep scuttle. Owing to the lowness of the chassis, the body appears somewhat squat when the back is folded up.



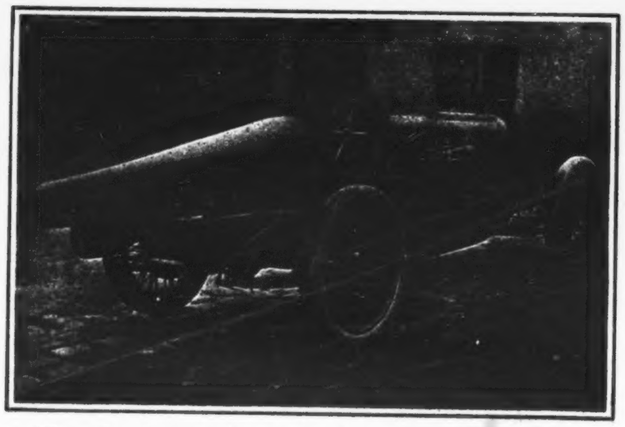
Is closer resemblance to a real boat possible?

The fidelity with which the boat builder's art has been imitated in this body is truly astonishing; the "hull" is properly built up of a number of "skins;" decks are laid in true nautical fashion and even the cockpit has a coaming. Note the protected fuel tank.



American three-passenger car that is different.

The third seat at the rear closes up out of sight and when closed is waterproof; besides it there are commodious lockers. The position of the tool box is worthy of note, for though fairly large, it does not obstruct the running board.



How foreign designers reduce wind resistance.

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A clever solution of

In this body, the designer has
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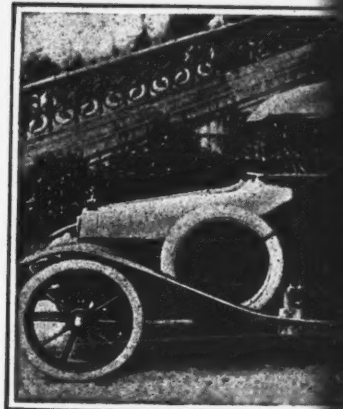

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Another view showing lines

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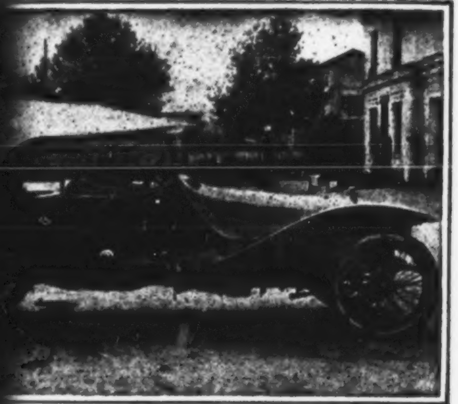

example of the "boat type" body.

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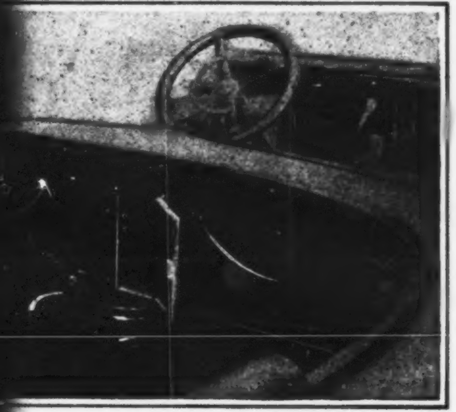

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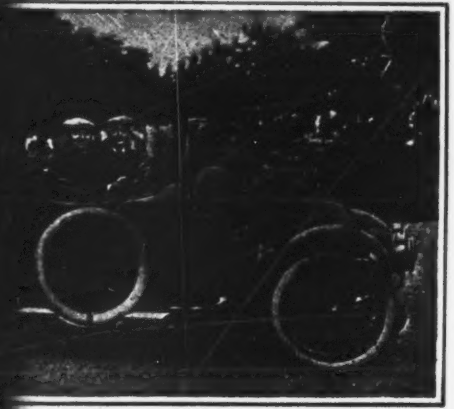

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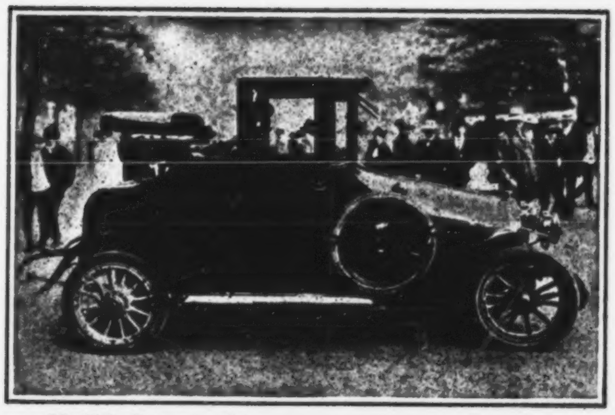

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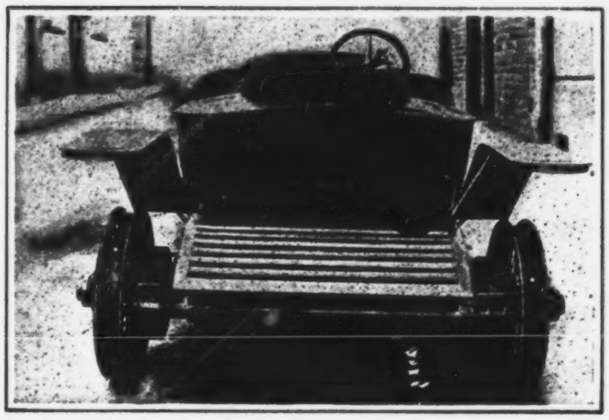

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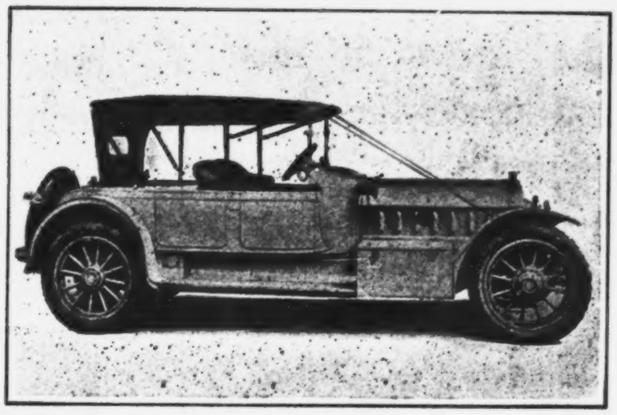
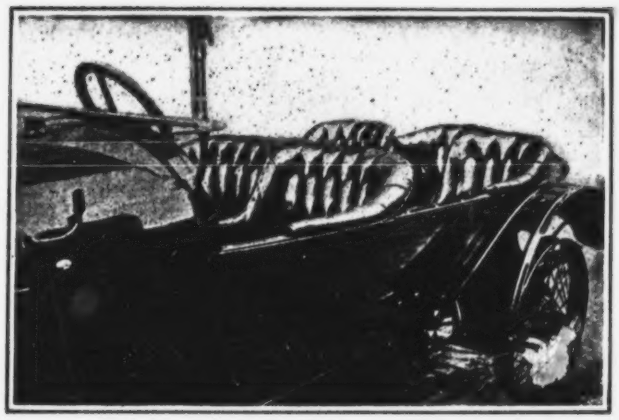


American three-passenger car that is different.

The third seat at the rear closes up out of sight and when closed is waterproof; besides it there are commodious lockers. The position of the tool box is worthy of note, for though fairly large, it does not obstruct the running board.

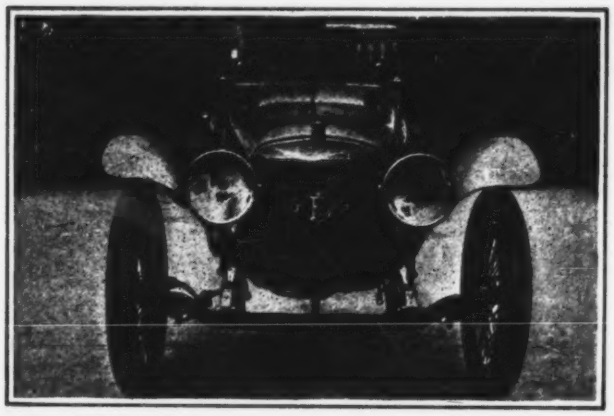
How foreign designers reduce wind resistance.

Type of racing body in which the stream-line principle is



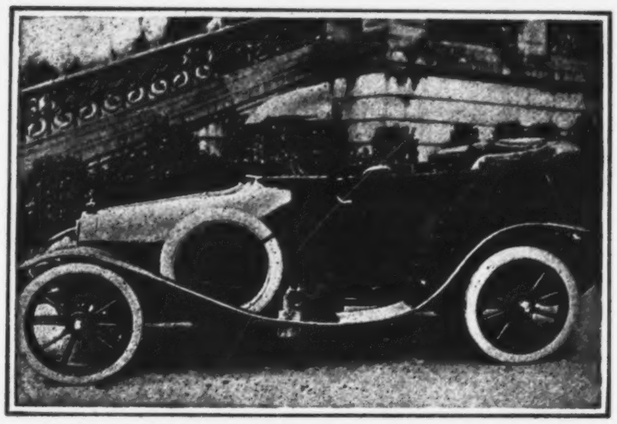
A clever solution of the seating problem.

In this body, the designer has placed the tonneau seats *en echelon* by way of giving all three occupants plenty of elbow room. The design, incidentally, provides for sociability among the passengers; conversation is facilitated; for no one is required to lean over any one else.



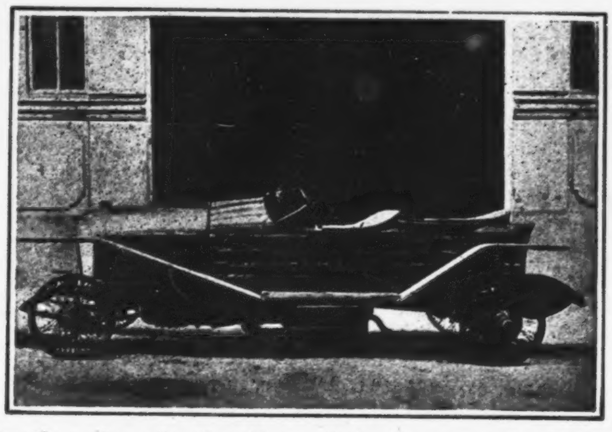
Dodging the conventional in front elevations.

The resemblance to an aeroplane with its widespread wings in unmistakable. The miniature "side" lamps, set into the dash, are in marked contrast to the powerful head lamps. The windshield, unbound at the top, reflects a well-defined tendency in design. The body is styled a skiff-torpedo.



Clever combination of sedan and limousine.

When the top is folded back, as shown, the body is to all intents and purposes an open touring body; but when it is raised the occupants may be as snug as the proverbial bug. What a contrast between the curving fender line and the severity of American practice!

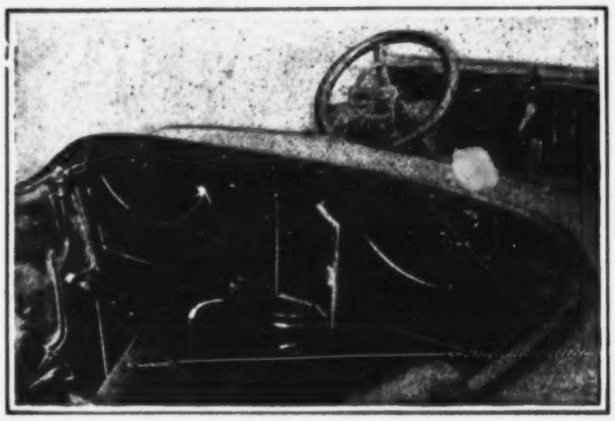


Another view showing lines of the "terra marine" body.

From the side, the resemblance to a boat is even more pro-

An interesting example of the "boat type" body.

The peculiar feature of the design lies in its ram-like forward lines and its torpedo stern; it is styled a skiff-torpedo and the body, though metal, is grained to represent wood. Lightness of construction evidently was sought, for running boards are missing and the mudguards are small.



Ingenious storage spaces that satisfy a real demand.

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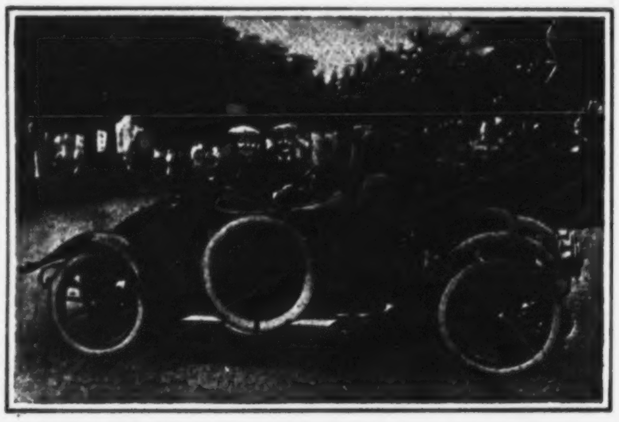
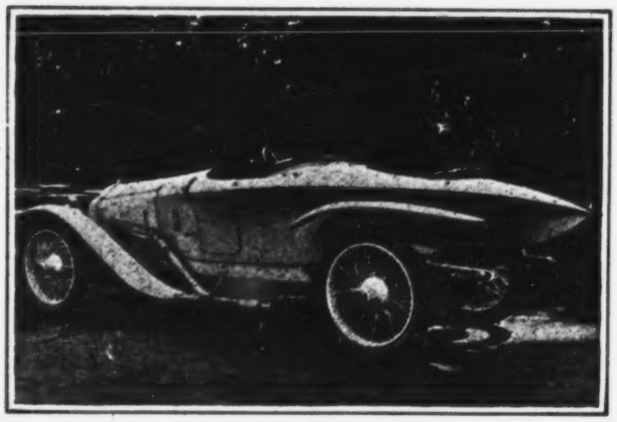


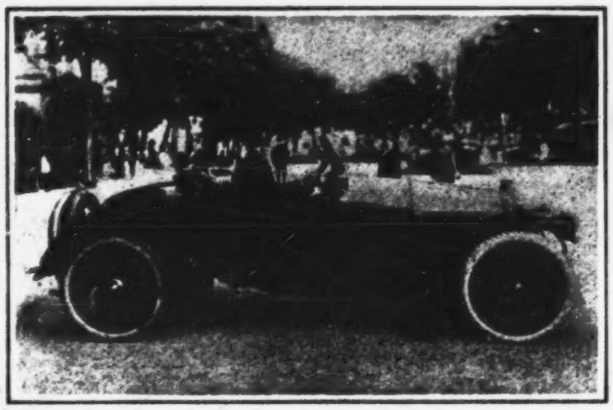
Side view of lately developed runabout model.

Compactness is the predominating feature of this vehicle which somewhat resembles a great black beetle, what with its sloping front and rear and its low-hung chassis. The provision of ventilators on the rear luggage compartment is unusual.



Another of the curious foreign "boat" bodies.

The exaggerated flare to the top-sides, the tiny after cockpit and the peculiar stern all proclaim the marine origin of the type. Mudguards are reduced to the minimum, it will be noted, and there are no side entrances to the single rear seat; running lamps are mounted atop the head lamps.

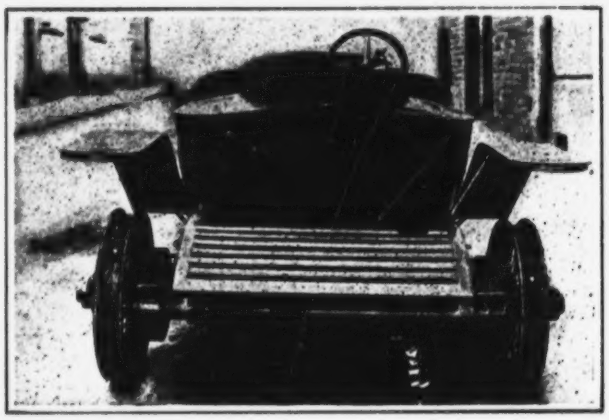


A representative type of fast foreign runabout.

Disked wheels, practically unknown in America, serve to reduce wind resistance and to promote cleanliness; they are fairly common abroad where little attention is paid to convention in the matter of appearance. Note the "turtle-back" rear effect and the lowness of the chassis.

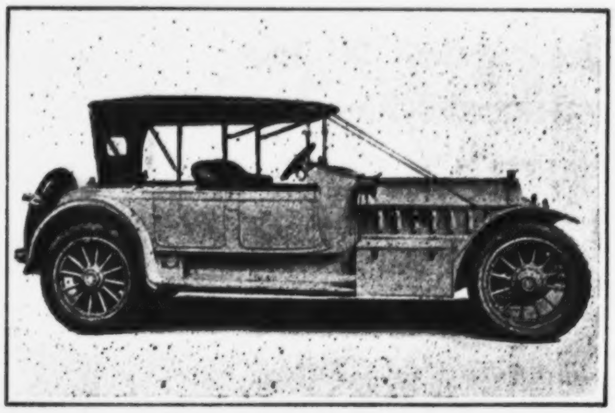
Modified type of two-passenger coupé model.

When closed, this body has much the appearance of a "conning tower." It is a good example of the European practice of sloping the engine hood sharply to blend with the lines of the deep scuttle. Owing to the lowness of the chassis, the body appears somewhat squat when the back is folded up.



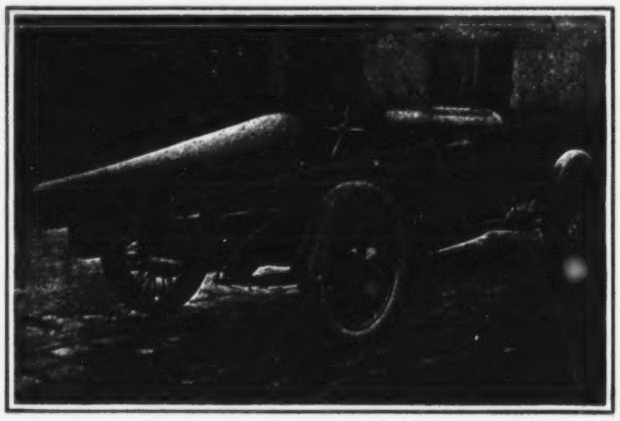
Is closer resemblance to a real boat possible?

The fidelity with which the boat builder's art has been imitated in this body is truly astonishing; the "hull" is properly built up of a number of "skins;" decks are laid in true nautical fashion and even the cockpit has a coaming. Note the protected fuel tank.



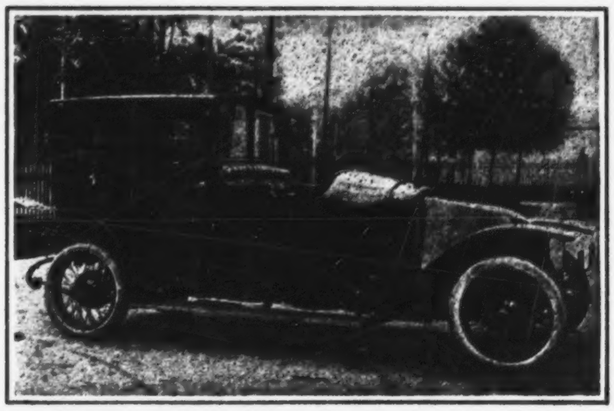
American three-passenger car that is different.

The third seat at the rear closes up out of sight and when closed is waterproof; besides it there are commodious lockers. The position of the tool box is worthy of note, for though fairly large, it does not obstruct the running board.



How foreign designers reduce wind resistance.

Type of racing body in which the stream-line principle is well exemplified, the theory being that the pressure at the rear nearly neutralizes the head resistance. The extreme to which the idea is carried is indicated by the rudder-like projections on the rear frame members.



The exaggerated coupé type of town vehicle.

The apparent great length of the chassis is accounted for by the fact that more than half the space is taken up by engine and driver. The abrupt, unfinished appearance of the inclosed part offsets the elaborate attempt at line blending at the front.

A clever solution of the seating pr

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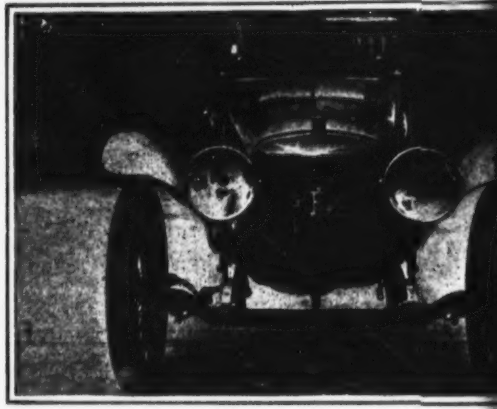

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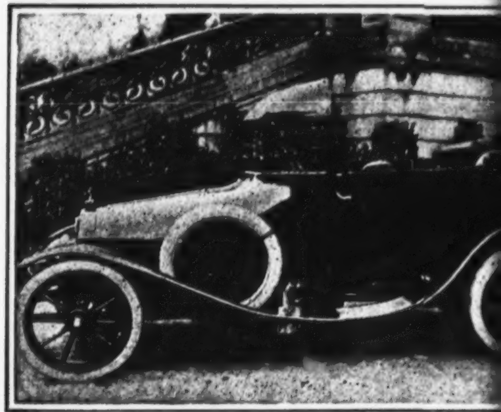

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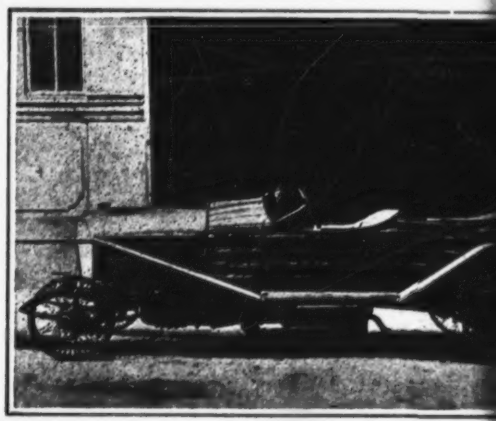

Another view showing lines of the "terra m

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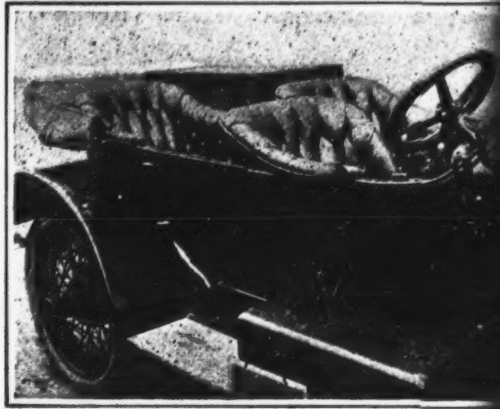
sensation at the recent French salon.



Brand new arrangement of seats and sto

It will be noted that the forward seats are stag
laudable purpose of providing both occupants
of room, and half the tonneau is reserved
The body is a utilitarian one, though the passen
is somewhat limited.

NEW IDEAS IN CAR BODIES DEVELOPED CHIEFLY ABROAD

example of the "boat type" body.

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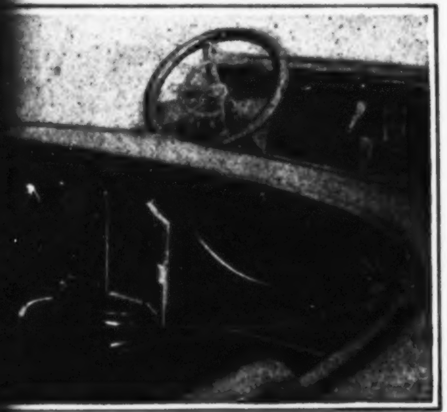
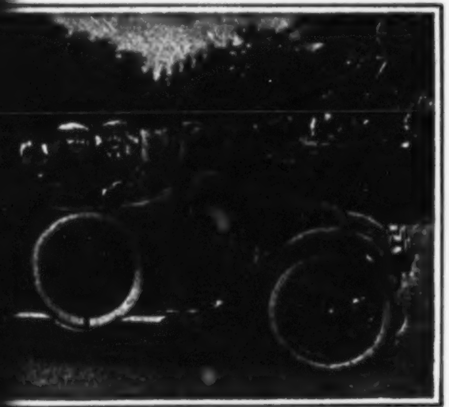
ruction evidently was sought, for running
and the mudguards are small.



ze spaces that satisfy a real demand.

safe carrying of goggles, gloves and the
other motoring necessities is not always
designer of this body has not found it par-
In the average American car, storage
is unknown.

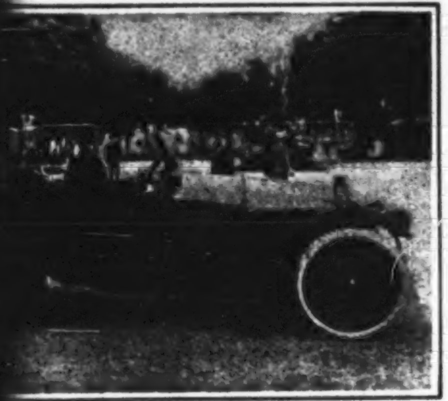


lately developed runabout model.

he predominating feature of this vehicle
resembles a great black beetle, what with
and rear and its low-hung chassis. The
tilators on the rear luggage compartment

the curious foreign "boat" bodies.

flare to the top-sides, the tiny after cockpit
stern all proclaim the marine origin of the
are reduced to the minimum, it will be
are no side entrances to the single rear
mps are mounted atop the head lamps.

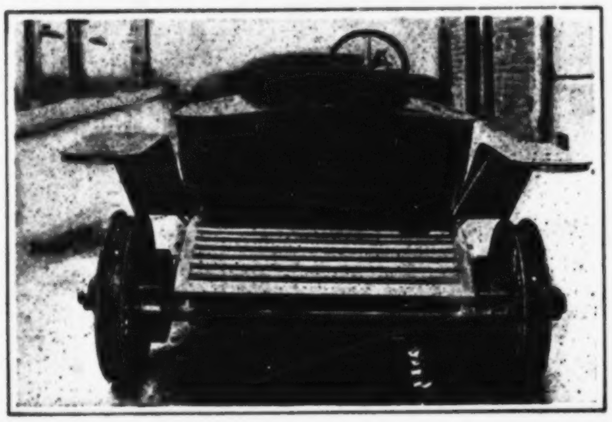


ive type of fast foreign runabout.

ractically unknown in America, serve to
tance and to promote cleanliness; they are
road where little attention is paid to con-
tter of appearance. Note the "turtle-back"
e lowness of the chassis.

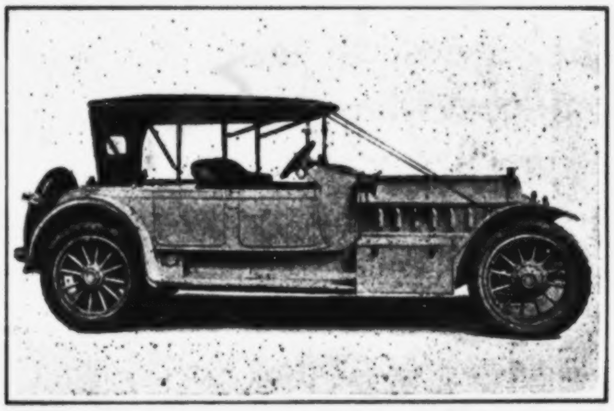
Modified type of two-passenger coupé model.

When closed, this body has much the appearance of a "conning tower." It is a good example of the European practice of sloping the engine hood sharply to blend with the lines of the deep scuttle. Owing to the lowness of the chassis, the body appears somewhat squat when the back is folded up.



Is closer resemblance to a real boat possible?

The fidelity with which the boat builder's art has been imitated in this body is truly astonishing; the "hull" is properly built up of a number of "skins;" decks are laid in true nautical fashion and even the cockpit has a coaming. Note the protected fuel tank.

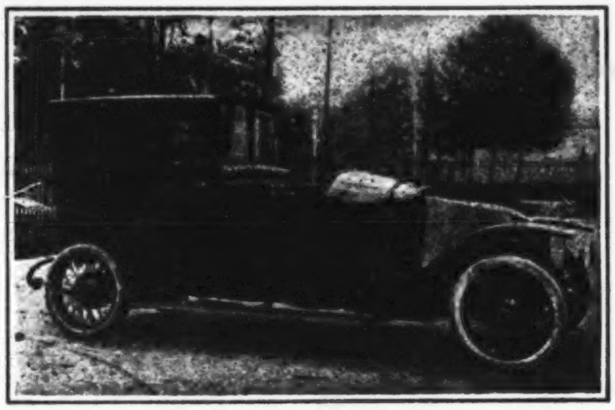


American three-passenger car that is different.

The third seat at the rear closes up out of sight and when closed is waterproof; besides it there are commodious lockers. The position of the tool box is worthy of note, for though fairly large, it does not obstruct the running board.

How foreign designers reduce wind resistance.

Type of racing body in which the stream-line principle is well exemplified, the theory being that the pressure at the rear nearly neutralizes the head resistance. The extreme to which the idea is carried is indicated by the rudder-like projections on the rear frame members.

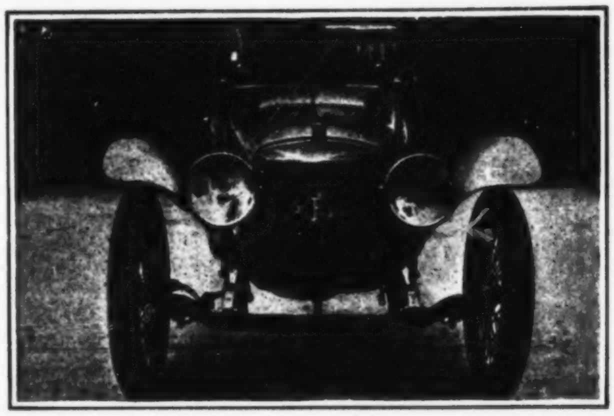


The exaggerated coupé type of town vehicle.

The apparent great length of the chassis is accounted for by the fact that more than half the space is taken up by engine and driver. The abrupt, unfinished appearance of the inclosed part offsets the elaborate attempt at line blending at the front.

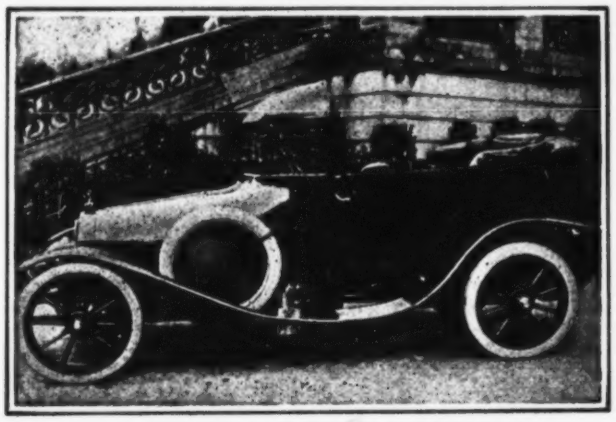
A clever solution of the seating problem.

In this body, the designer has placed the tonneau seats *en echelon* by way of giving all three occupants plenty of elbow room. The design, incidentally, provides for sociability among the passengers; conversation is facilitated; for no one is required to lean over any one else.



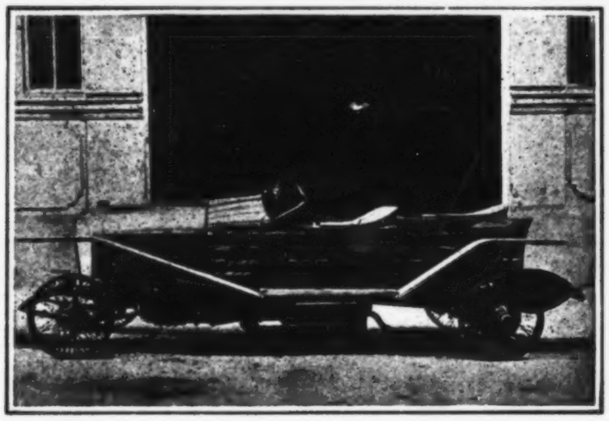
Dodging the conventional in front elevations.

The resemblance to an aeroplane with its widespread wings in unmistakable. The miniature "side" lamps, set into the dash, are in marked contrast to the powerful head lamps. The windshield, unbound at the top, reflects a well-defined tendency in design. The body is styled a skiff-torpedo.



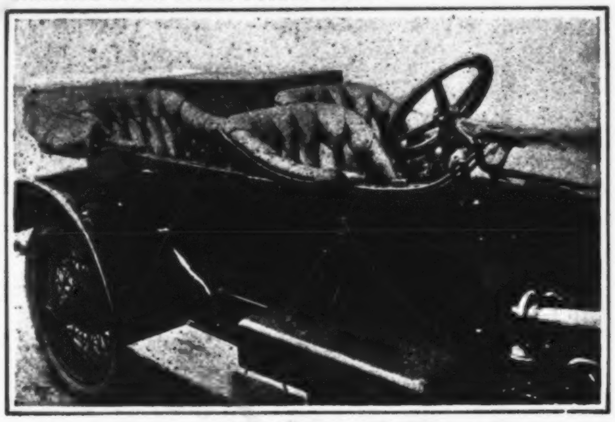
Clever combination of sedan and limousine.

When the top is folded back, as shown, the body is to all intents and purposes an open touring body; but when it is raised the occupants may be as snug as the proverbial bug. What a contrast between the curving fender line and the severity of American practice!



Another view showing lines of the "terra marine" body.

From the side, the resemblance to a boat is even more pronounced; the lines are those of the typical, fast runabout launch. The illusion is made complete by holding a card so as to obscure the engine hood. This body caused a genuine sensation at the recent French salon.



Brand new arrangement of seats and storage space.

It will be noted that the forward seats are staggered for the laudable purpose of providing both occupants with plenty of room, and half the tonneau is reserved for luggage. The body is a utilitarian one, though the passenger capacity is somewhat limited.

NEW IDEAS IN CAR BODIES DEVELOPED CHIEFLY ABROAD

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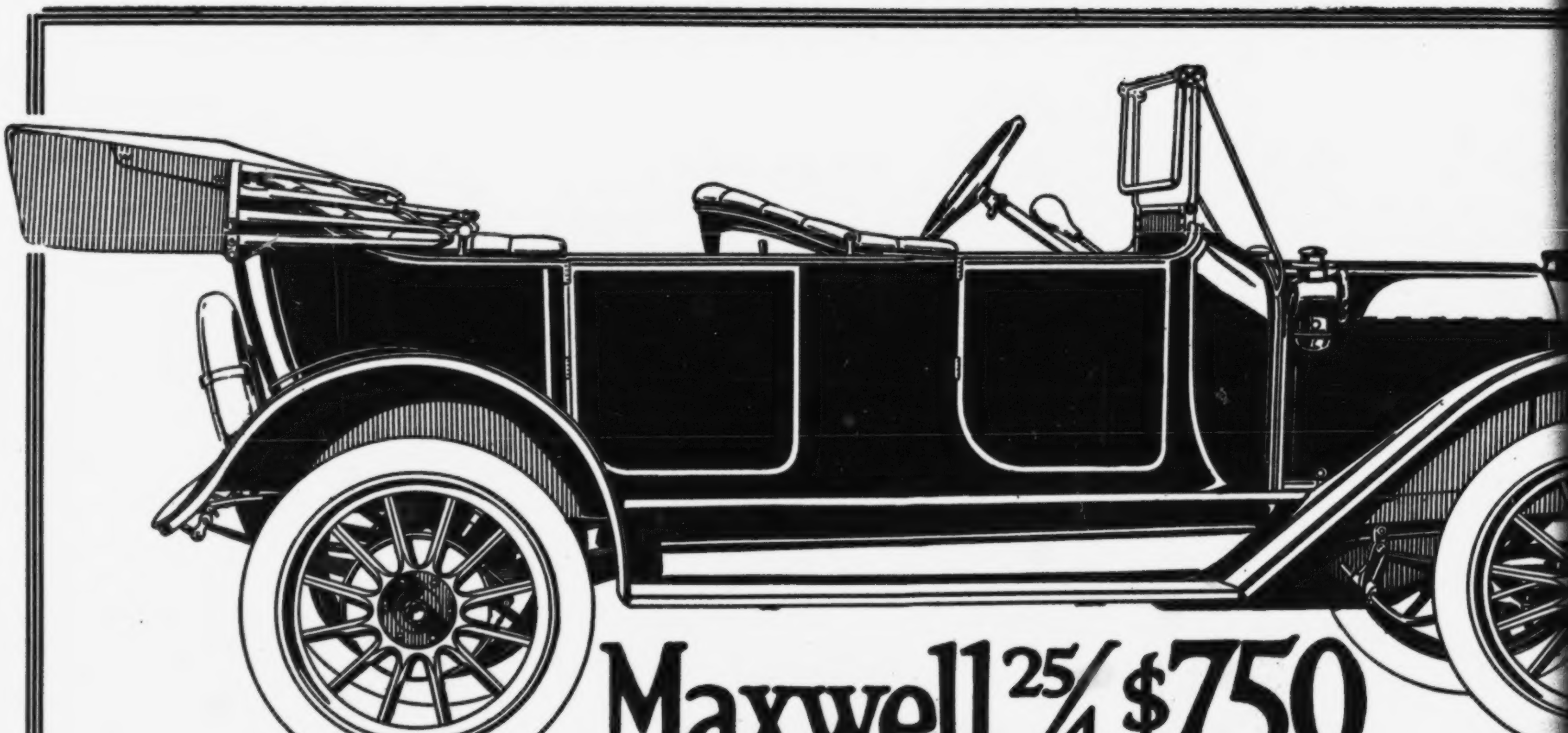

Maxwell 25/4 $750

The Pioneer of the Past—and of the Fu

The Oldest, and yet the newest car in this Automobile Show is the Maxwell "25."

No name dates farther back in this industry—and yet if you look where the crowd blocks the aisle, you'll agree that visitors consider the latest Maxwell—the "25-4"—the newest of them all.

To say this $750 car is the "sensation" of the 1914 Show, would be trite—tho true. It is more than that.

It is Revolutionary.

Revolutionary, because never before has it been possible to obtain a car of such size, such capacity, such power, such performance and of such quality throughout, as you will see in this Maxwell "25" at the price—$750 fully equipped.

We call it an engineering triump you'll agree we are justified w recall that for years, hundreds of have been looking, hoping, wa such a car at the price.

We say this car is the Oldest c Show—because more years of ex more combined engineering ski know-how have gone into it went into any other automobil price.

And, backing up that experie skill; that know-how; is as mu as ever backed an automobile c

Add to this, honesty of purpose, a desire to make good and t well at the hands of every ow you have the elements that

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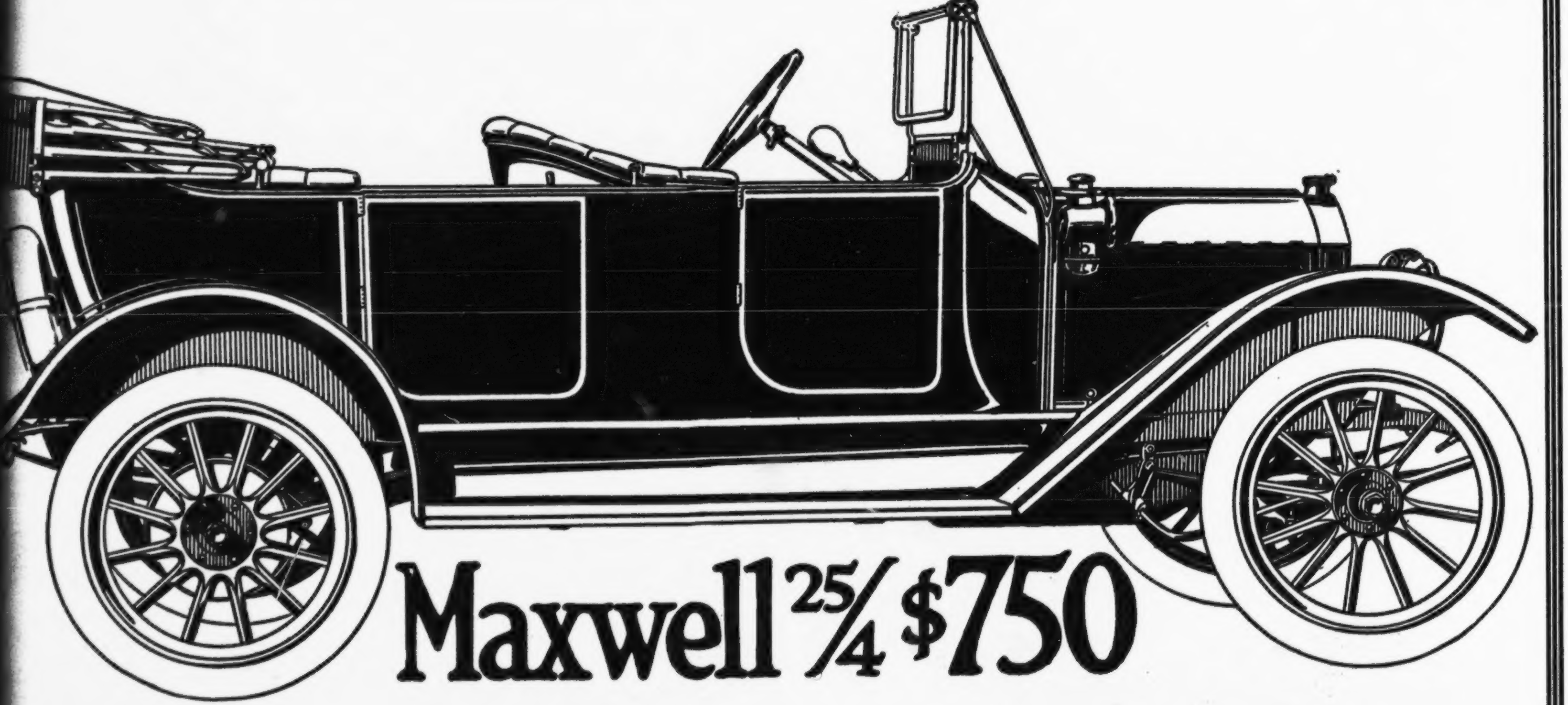

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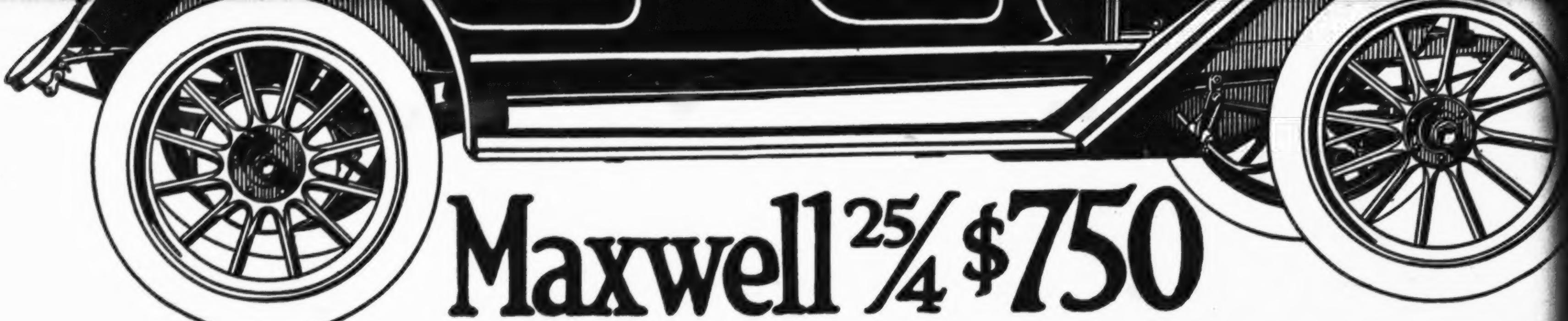
We call it an engineering triumph. And you'll agree we are justified when you recall that for years, hundreds of thousands have been looking, hoping, waiting, for such a car at the price.

We say this car is the Oldest car in the Show—because more years of experience; more combined engineering skill; more know-how have gone into it than ever went into any other automobile at the price.

And, backing up that experience; that skill; that know-how; is as much money as ever backed an automobile concern.

Add to this, honesty of purpose, pride, and a desire to make good and to deserve well at the hands of every owner—and you have the elements that combined have produced this car that is the wonder of the Show—that blocks the aisle in front of the exhibit and thereby is pro-



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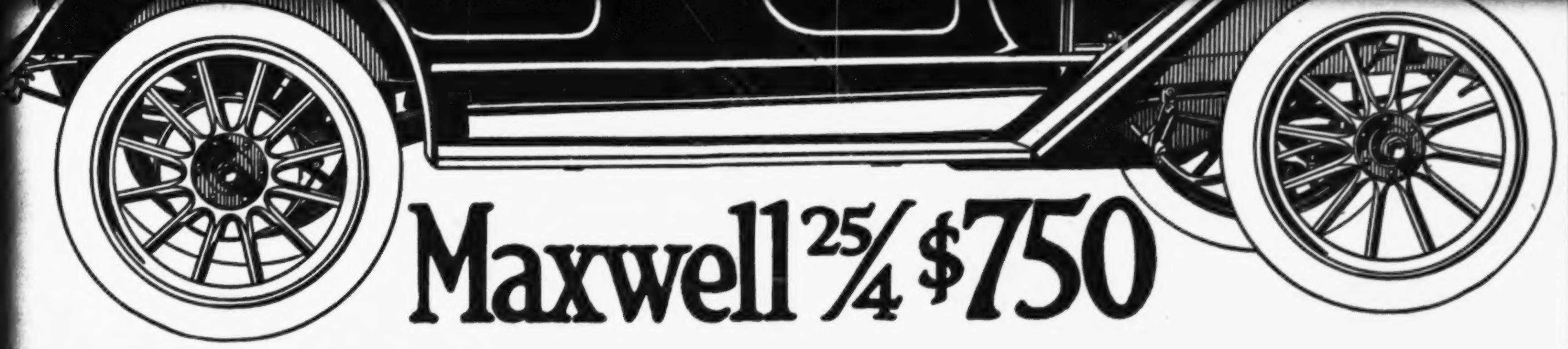
MAXWELL MOTOR COMPANY

(INCORPORATED) DETROIT MICHIGA



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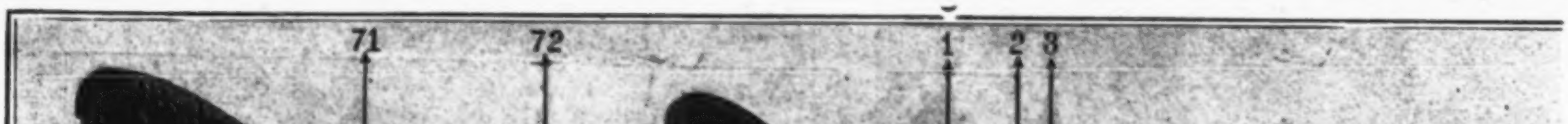
AXWELL MOTOR COMPANY

(INCORPORATED) DETROIT MICHIGAN

CARS



LONGITUDINAL SECTIONAL VIEW OF A FOUR-CYLINDER GASOLINE TOURING CAR OF DISTINCTIVELY AMERICAN DESI

1, Throttle lever; 2, steering wheel; 3, steering column; 4, clutch and brake pedal; 5, spark coil; 6, vibrator; 7, 5-gallon gasoline tank for supplying carbureter by gravity; 8, copper wat rings; 11, piston and oil groove; 12, compression chamber; 13, inlet valve; 14, spark plug; 15, relief cock; 16, exhaust valve; 17, carbureter; 18, inlet pipe; 19, exhaust pipe; 20, bon driving oil pump; 24, radiator cap; 25, water tank; 26, radiator; 27, radiator fan; 28, chain for driving fan; 29, starting crank; 30, centrifugal water pump; 31, spring hanger; 32, com axle; 35, oil pump for governing device; 36, tubular sub-frame supporting engine; 37, piston of oil governor; 38, reserve oil chamber of governor; 39, rod connecting steering levers of fr column; 41, exhaust valve cam; 42, variable inlet valve cam; 43, bearing for slidable cam shaft; 44, 45, connecting rod and crank; 46, crank cheek; 47, crankshaft; 48, flywheel; 49, d wheel; 50, ball bearings of transmission shaft; 51, planetary transmission giving three speeds ahead and one reverse; 52, double-acting transmission brake; 53, universal joint of drivin rod; 56, pressure pipe from exhaust pipe to gasoline tank; 57. universally-jointed driving shaft; 58, muffler; 59, slidable universal joint; 60, rear spring; 61, bevel driving pinion; 62, 64, differential gear casing; 65, 20-gallon gasoline tank; 66, transverse rear spring support; 67, pressed steel side frame; 68, swinging filler for gasoline tank; 69, wood frame of body; 7 side entrance door.

A TYPICAL AMERICAN TOURING CAR.

The annexed sectional cut shows in considerable detail the mechanism of a gasoline touring car of distinctively American type. From the manufacture of a single-cylinder runabout and light tonneau, the makers of the Cadillac machines have risen to the construction of the huge car seen below. In doing this, however, they have wisely retained features which contributed largely to the success of the smaller models, and at the same time added several novel improvements. Thus we see on the touring car engine copper water jackets, variable-lift mechanically-operated inlet valves, and the same floatless atomizer or mixer that have been used heretofore; while a distinct novelty for a car of this kind is the employment of a planetary transmission gear which, in connection with a clutch in the flywheel, gives three speeds forward with a direct through drive on the third, or high speed. The special form of three-speed planetary gear for the large touring car was developed from the two-speed gear of the smaller machines by the addition of only one moving part. As is well known, this transmission is well adapted for continuous heavy pulling, because it has no high-speed parts and its gears are subjected to lower tooth strains, size for size, than those of any other common type of transmission. With this type of transmission it is possible to pass instantly from one speed to another by simply pushing a lever. The gears are always in mesh, and there is no chance of stripping them from bad manipulation.

The engine is governed by varying the lift of the inlet valves. This is accomplished by sliding the cam-

telescopic universal joint, 59, is to be noted. The car has a spur-gear differential and bevel driving pinion, 61, which can be readily adjusted from the outside. The main rear axle is a solid tube having ball bearings on each end for the wheels. The live axle extends through these, and drives them by means of jaw clutches that lock it to the outside face of the hubs. The car has long, heavy springs, besides a transverse spring at the back. Its wheels are shod with 34 x 4½-inch tires, and it has a wheel base of 100 inches, while the length of the frame itself is over 12 feet. The weight complete is in the neighborhood of 2,600 pounds. The 4⅜ x 5-inch engine is rated at 30 horse-power, and it is capable of driving the machine at a rate of speed of 50 miles an hour.

Altogether this car is a good example of that simplicity of construction that is aimed at by almost all American builders.

A Novel System of Wireless Telegraphy.

BY DR. ALFRED GRADENWITZ.

Our readers will doubtless remember the beautiful experiments in wireless telephony which were made by Herr F. Ruhmer on the Wannsee Lake, near Berlin, last year and continued with increasing success in the course of last summer. Now the inventor has applied his process to optical telegraphy.

In optical telegraphy the rays issuing from a projector are, as a rule, intercepted at given intervals, so as to form luminous flashes, succeeding one another more or less rapidly. In the Ruhmer telegraph system, on the contrary, the so-called speaking arcs are utilized

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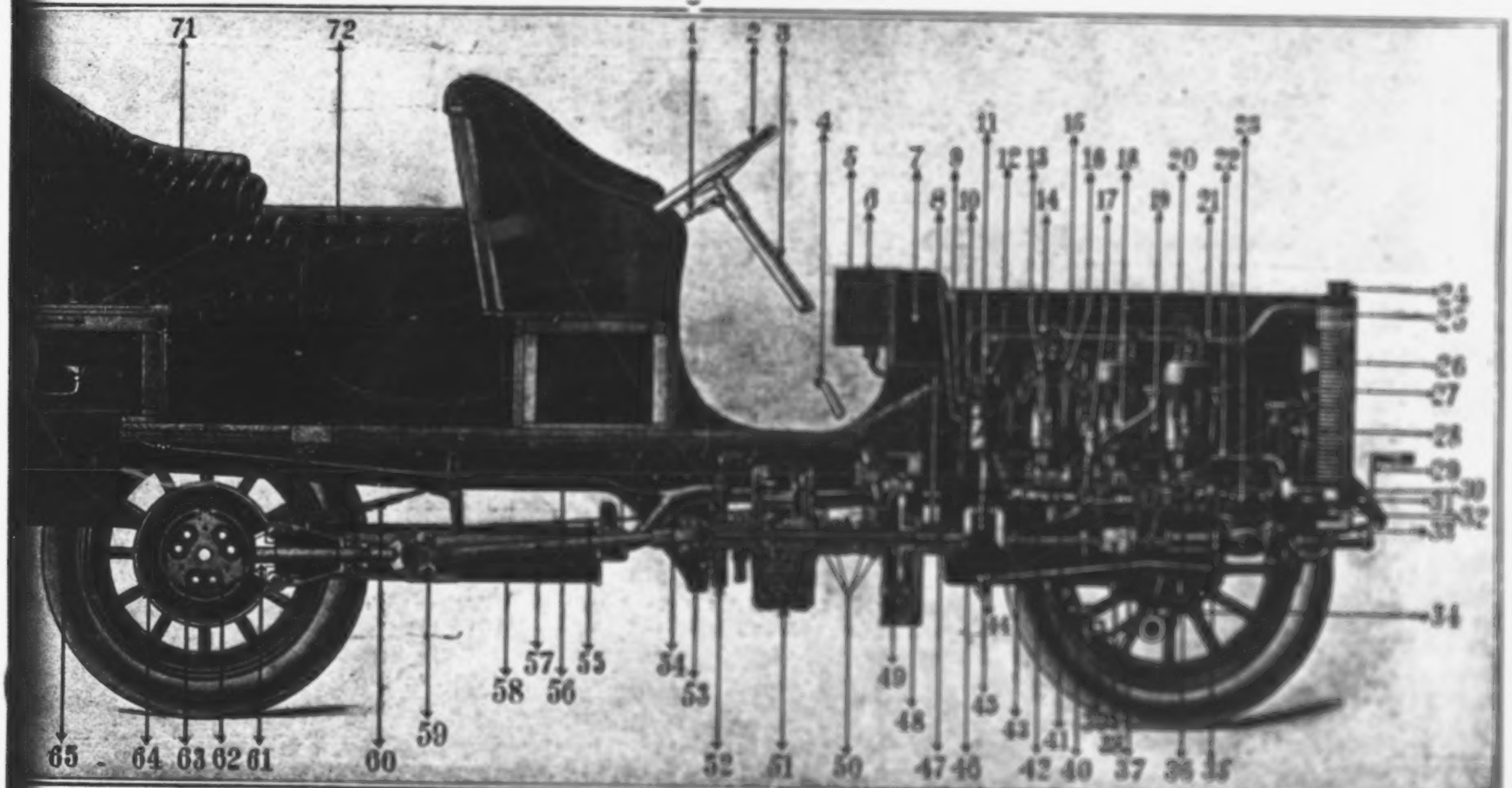
lium cell at the receiving station to alter the resistance of the electric circuit through the telephones, thereby producing intermittent humming sounds which vary with intervals corresponding to those of Morse signals. The pitch of this sound will depend on the frequency of the interrupter. Whereas in transmitting language, uncertainties are possible on account of the different acoustical intensities of the different vowels, the same sounds have to be heard here for more or less prolonged intervals. It has therefore been possible to insure perfectly clear transmissions of signals in atmospheric conditions which would have rendered difficult the transmission of language. The beginning of a communication is indicated by a bell, operated by the selenium cell without the agency of any wire connecting it with the transmitting station.

The satisfactory results of the experiments so far made, go to show that this system of optical telegraphy, like the analogous system of optical telephony, will be used to special advantage in the case of transmissions over short distances.

◆

A Prize for Cement Essays.

Prizes to the value of 15,000 marks are being offered conjointly by the Prussian government and the German Society of Portland Cement Manufacturers for essays on the processes which take place during the hardening of hydraulic cements. The following questions are those offered for investigation, any or all of which may be taken by the competitor: Demonstration of the properties and of the hardening process of calcareous hydraulic cements, synthetically, analytically, mi-



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ring wheel; 3, steering column; 4, clutch and brake pedal; 5, spark coil; 6, vibrator; 7, 5-gallon gasoline tank for supplying carburetor by gravity; 8, copper water jacket; 9, cylinder wall; 10, piston nd oil groove; 12, compression chamber; 13, inlet valve; 14, spark plug; 15, relief cock; 16, exhaust valve; 17, carburetor; 18, inlet pipe; 19, exhaust pipe; 20, bonnet; 21, 22, water pipes; 23, gear for 24, radiator cap; 25, water tank; 26, radiator; 27, radiator fan; 28, chain for driving fan; 29, starting crank; 30, centrifugal water pump; 31, spring hanger; 32, commutator; 33, front spring; 34, tubular for governing device; 36, tubular sub-frame supporting engine; 37, piston of oil governor; 38, reserve oil chamber of governor; 39, rod connecting steering levers of front wheels; 40, connection to steering st valve cam; 42, variable inlet valve cam; 43, bearing for slidable cam shaft; 44, 45, connecting rod and crank; 46, crank cheek; 47, crankshaft; 48, flywheel; 49, double-faced expanding clutch in fly- rings of transmission shaft; 51, planetary transmission giving three speeds ahead and one reverse; 52, double-acting transmission brake; 53, universal joint of driving shaft; 54, exhaust pipe; 55, brake pipe from exhaust pipe to gasoline tank; 57, universally-jointed driving shaft; 58, muffler; 59, slidable universal joint; 60, rear spring; 61, bevel driving pinion; 62, 63, pinions of spur gear differential; casing; 65, 20-gallon gasoline tank; 66, transverse rear spring support; 67, pressed steel side frame; 68, swinging filler for gasoline tank; 69, wood frame of body; 70, aluminium body; 71, tonneau; 72, ransmission gear which, in connection with a clutch one moving part. As is well known, this transmission is well adapted for continuous heavy pulling, because it has no high-speed parts and its gears are subjected to lower tooth strains, size for size, than those of any other common type of transmission. With this type of transmission it is possible to pass instantly from one speed to another by simply pushing a lever. The gears are always in mesh, and there is no chance of stripping them from bad manipulation.

The engine is governed by varying the lift of the inlet valves. This is accomplished by sliding the camshaft (the inlet-valve cams of which are tapered) bodily lengthwise and thus bringing the lower part of the inlet cam, 42, beneath the roller of the inlet-valve stem, 13. The result is the valve does not open so much and the engine is throttled. The camshaft is slid by means of a piston, 37, moved in a cylinder by oil pumped by a rotary gear pump, 35. The camshaft is set for maximum lift normally, and held in this position by a spring. When a by-pass controlled by the throttle lever, 1, is opened, oil is drawn from the reservoir, 38, and pumped against the oil piston, thus forcing it, its rod, and the camshaft as well lengthwise against the spring. This is a simple device, which has been found to work well in practice. The lubrication of the engine is entirely by splash, only one sight-feed, supplied by a mechanical oiler, being used. A series of inclined troughs on the inside walls of the crankcase carry the oil from one end of the motor to the other and back, while curved oil pipes on each crank box pick up oil and conduct it to the bearings. The commutator is placed in a hole at the base of the radiator. The jump-spark system with coils having vibrators and with batteries as a current source, is used. A gear-driven centrifugal pump circulates the water. Ball bearings are used throughout, and a special form of

Altogether this car is a good example of that simplicity of construction that is aimed at by almost all experiments in wireless telephony which were made by Herr F. Ruhmer on the Wannsee Lake, near Berlin, last year and continued with increasing success in the course of last summer. Now the inventor has applied his process to optical telegraphy.

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The receiving station is arranged in a way analogous to those of optical telephony, comprising two telephones and one parabolic reflector in the focus of which the selenium cell is placed. The luminous oscillations of the transmitting station act on the selen-

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The satisfactory results of the experime

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crystalloids in stable proportions, or as
varying proportions. (b) To prove whet
combinations result between silicic acid, al
oxide of iron with lime, and in what m
substances are engaged in the hardening p
Consideration of the swelling phenomenon
companies the hydraulic hardening. (d) Co
of the influence of the temperature and len
of the burning process on the different kind
lic cements. (e) Properties of puzzolana
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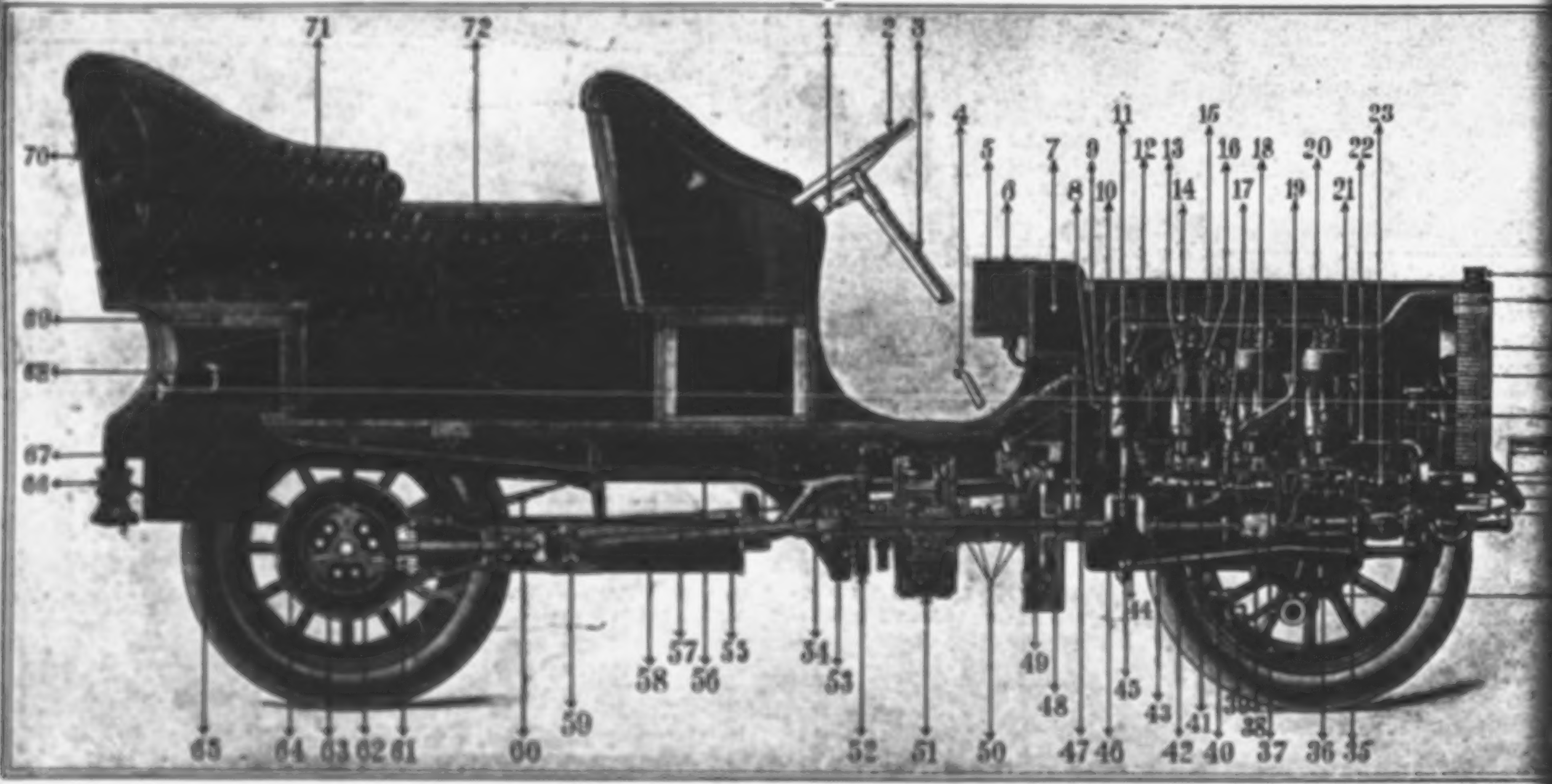
and submitted under a nom de plume to t
of Public Works, 80, Wilhelmstrasse, Berli
fore December 31, 1906. The papers wi
dated by a committee comprising Profs.
Schütze, and Fresenius, Drs. Michaelis and
and Messrs. E. Crammer and F. Schott, a
the Royal Testing Station, Berlin.



LONGITUDINAL SECTIONAL VIEW OF A FOUR-CYLINDER GASOLINE TOURING CAR OF DISTINCTIVELY AMERICAN DESIGN.

1, Throttle lever; 2, steering wheel; 3, steering column; 4, clutch and brake pedal; 5, spark coil; 6, vibrator; 7, 5-gallon gasoline tank for supplying carburetor by gravity; 8, copper water jacket; 9, cylinder w
range; 11, piston and oil groove; 12, compression chamber; 13, inlet valve; 14, spark plug; 15, relief cock; 16, exhaust valve; 17, carburetor; 18, inlet pipe; 19, exhaust pipe; 20, bonnet; 21, 22, water pipe
driving oil pump; 24, radiator cap; 25, water tank; 26, radiator; 27, radiator fan; 28, chain for driving fan; 29, starting crank; 30, centrifugal water pump; 31, spring hanger; 32, commutator; 33, front spri
axle; 35, oil pump for governing device; 36, tubular sub-frame supporting engine; 37, piston of oil governor; 38, reserve oil chamber of governor; 39, rod connecting steering levers of front wheels; 40, connec
column; 41, exhaust valve cam; 42, variable inlet valve cam; 43, bearing for slidable cam shaft; 44, 45, connecting rod and crank; 46, crank cheek; 47, crankshaft; 48, flywheel; 49, double-faced expanding
wheel; 50, ball bearings of transmission shaft; 51, planetary transmission giving three speeds ahead and one reverse; 52, double-acting transmission brake; 53, universal joint of driving shaft; 54, exhaust p
rod; 56, pressure pipe from exhaust pipe to gasoline tank; 57, universally-jointed driving shaft; 58, muffler; 59, slidable universal joint; 60, rear spring; 61, bevel driving pinion; 62, 63, pinions of spur ge
64, differential gear casing; 65, 20-gallon gasoline tank; 66, transverse rear spring support; 67, pressed steel side frame; 68, swinging filler for gasoline tank; 69, wood frame of body; 70, aluminium body; 7
side entrance door.

hich, in connection with a clutch
es three speeds forward with a di-
continuous heavy pulling, because
d parts and its gears are subjected
ins, size for size, than those of any
of transmission. With this type
is possible to pass instantly from
r by simply pushing a lever. The

n mesh, and there is no chance of
m bad manipulation.
overned by varying the lift of the
is accomplished by sliding the cam-
alve cams of which are tapered)
and thus bringing the lower part of
beneath the roller of the inlet-valve
ult is the valve does not open to
gine is throttled. The camshaft is
piston, 37, moved in a cylinder by
tary gear pump, 35. The camshaft
m lift normally, and held in this
. When a by-pass controlled by the
opened, oil is drawn from the reser-
d against the oil piston, thus forcing
camshaft as well lengthwise against
is a simple device, which has been
ll in practice. The lubrication of
ely by splash, only one sight-feed,
hanical oiler, being used. A series
on the inside walls of the crank-
from one end of the motor to the
ile curved oil pipes on each crank
d conduct it to the bearings. The
ed in a hole at the base of the radi-
ark system with coils having vibrat-
ies as a current source, is used. A
gal pump circulates the water. Ball
throughout, and a special form of

Altogether this car is a good example of that simplicity of construction that is aimed at by almost all

experiments in wireless telephony which were made by Herr F. Ruhmer on the Wannsee Lake, near Berlin, last year and continued with increasing success in the course of last summer. Now the inventor has applied his process to optical telegraphy.

In optical telegraphy the rays issuing from a projector are, as a rule, intercepted at given intervals, so as to form luminous flashes, succeeding one another more or less rapidly. In the Ruhmer telegraph system, on the contrary, the so-called speaking arcs are utilized by superposing on the direct current circuit of the lamp placed at the sending station in the focus of a projector, a continuous current frequently broken by means of a mechanical interrupter, the opening and closing being insured by a Morse key, in accordance with ordinary Morse signals. At each closing of the telegraph key, the superposed and frequently interrupted current will modify the luminous intensity emanating from the electric arc, giving rise to luminous oscillations which are projected toward the receiving station. If all the conditions be so arranged that the luminous intensity of the lamp is maintained constant, this process will insure not only a more rapid handling of telegrams, but will permit at the same time of keeping the latter strictly secret, as the human eye, incapable of discerning any more than 10 luminous alternations per second, will get the impression of a continuous beam on account of the rapidity with which the luminous oscillations of the transmitting station will succeed each other.

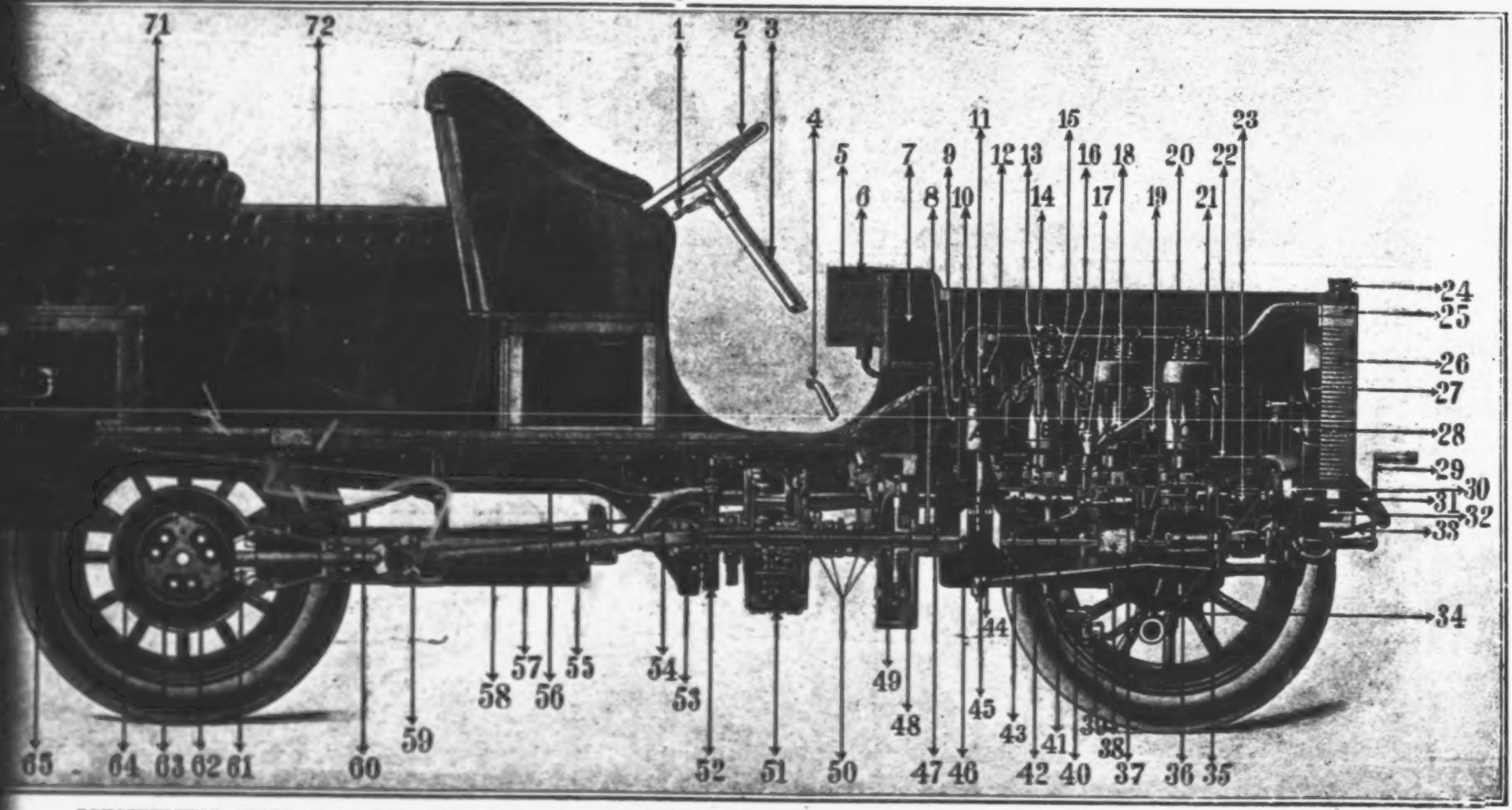
The receiving station is arranged in a way analogous to those of optical telephony, comprising two telephones and one parabolic reflector in the focus of which the selenium cell is placed. The luminous oscillations of the transmitting station act on the selen-

ing it with the transmitting station.

The satisfactory results of the experiments so far

A Prize for Cement Essays.

Prizes to the value of 15,000 marks are being offered conjointly by the Prussian government and the German Society of Portland Cement Manufacturers for essays on the processes which take place during the hardening of hydraulic cements. The following questions are those offered for investigation, any or all of which may be taken by the competitor: Demonstration of the properties and of the hardening process of calcareous hydraulic cements, synthetically, analytically, microscopically, mineralogically (hardening in air, fresh water, and sea water). (a) To prove whether silicic acid, alumina, and oxide of iron combine with lime as crystalloids in stable proportions, or as colloids in varying proportions. (b) To prove whether double combinations result between silicic acid, alumina, and oxide of iron with lime, and in what manner these substances are engaged in the hardening process. (c) Consideration of the swelling phenomenon which accompanies the hydraulic hardening. (d) Consideration of the influence of the temperature and length of time of the burning process on the different kinds of hydraulic cements. (e) Properties of puzzolana and its hardening with lime; beginning with silicic acid as the most active and prevailing puzzolana, alumina, oxide of iron, and manganese, independently and in combination with silicic acid, either as natural or artificial puzzolana. The papers must be written in German and submitted under a nom *de plume* to the Ministry of Public Works, 80, Wilhelmstrasse, Berlin, on or before December 31, 1906. The papers will be adjudicated by a committee comprising Profs. Van't Hoff, Schiebe, and Fresenius, Drs. Michaelis and H. Passow, and Messrs. E. Crammer and F. Schott, and officials of the Royal Testing Station, Berlin.



LONGITUDINAL SECTIONAL VIEW OF A FOUR-CYLINDER GASOLINE TOURING CAR OF DISTINCTIVELY AMERICAN DESIGN.

ring wheel; 3, steering column; 4, clutch and brake pedal; 5, spark coil; 6, vibrator; 7, 5-gallon gasoline tank for supplying carbureter by gravity; 8, copper water jacket; 9, cylinder wall; 10, piston
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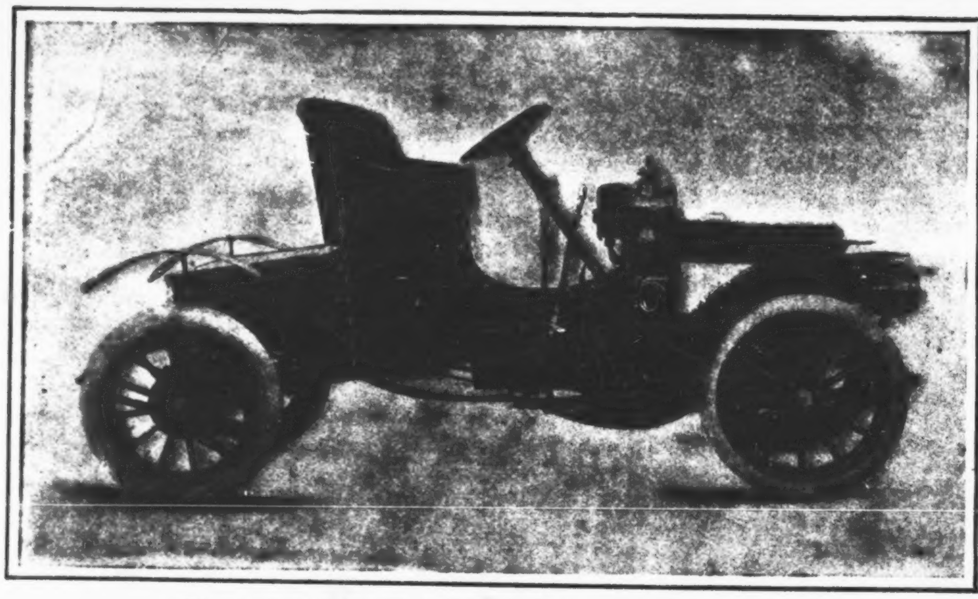
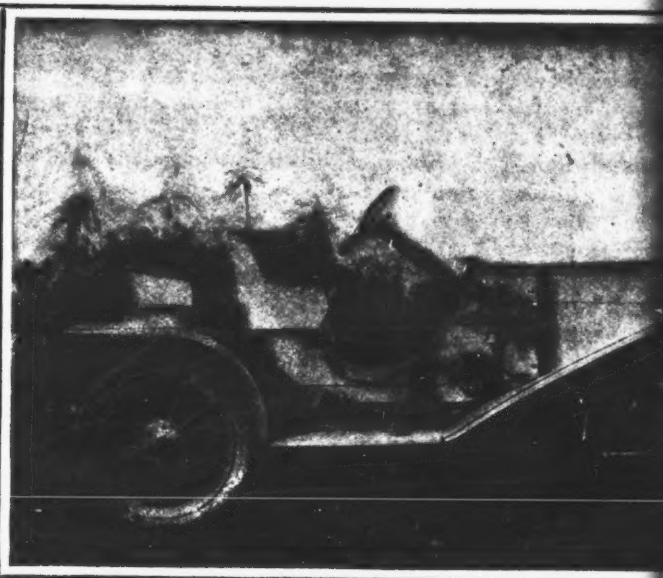
CARS



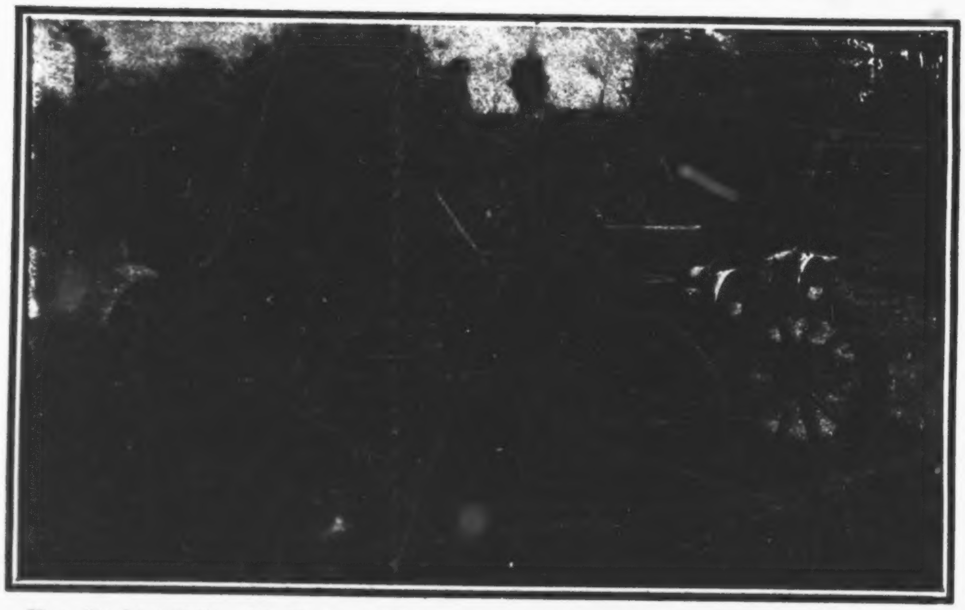
The New 12-Horse-Power Franklin Light Runabout.

Engine: 3¼ x 3¼, 4-cylinder, air-cooled. Transmission: 3-speed progressive type. Clutch: Multiple disk in flywheel. Drive: Shaft. Weight: 1,250 pounds. Wheel base: 90 inches. Tires: Front, 30 x 3; rear, 30 x 3½.



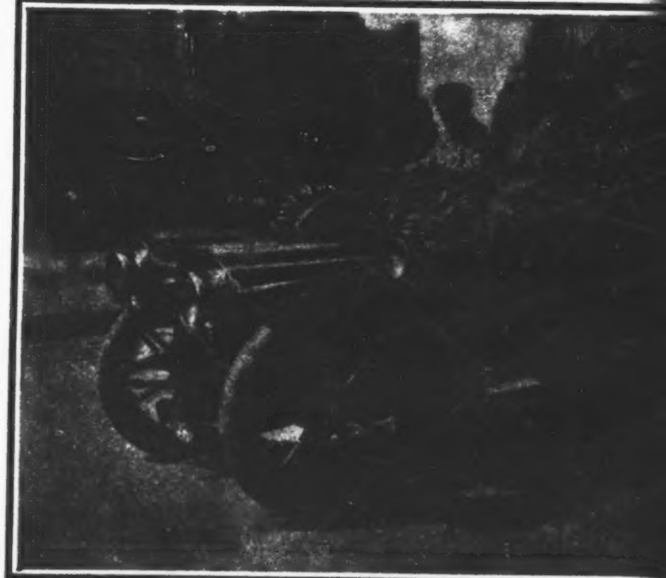
The Oldsmobile 35-Horse-Power Runabout With

Engine: 4½ x 4¾, 4-cylinder. water-cooled. Transmission: 3-speed selectiv
Drive: Shaft. Weight: 2,000 pounds. Wheel base: 106 inches. Tires:



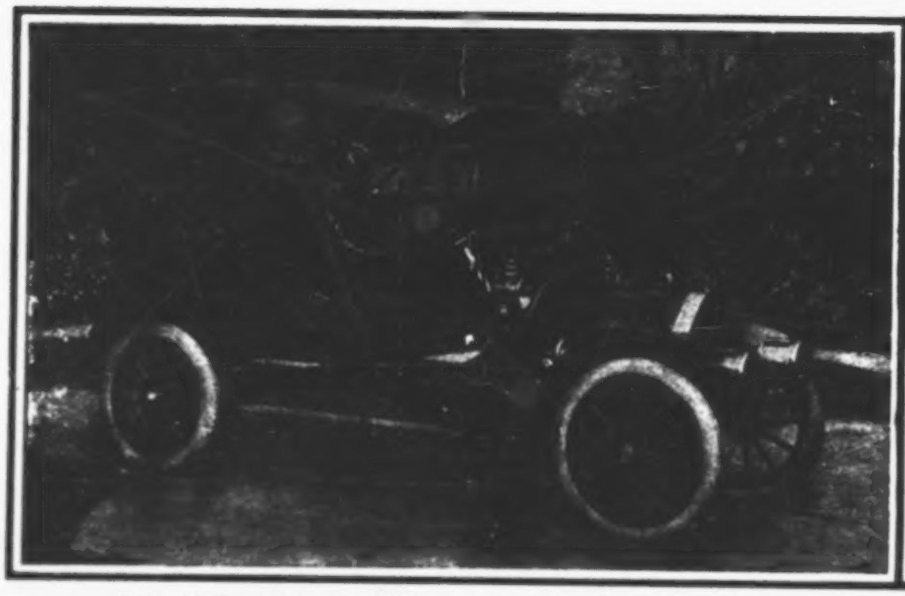
Mrs. F. D. Cottle—98 Years of Age—in a 40-Horse-Power American Mercedes.

Mrs. Cottle made trip from New York to Boston pleasantly and without fatigue in two days. Engine: 120 x 150 mm. (4.724 x 5.905 in.), 4-cylinder, water-cooled. Transmission: 4-speed selective type. Clutch: Metallic expanding ring. Drive: Double side chain. Weight: 3,440 pounds. Wheel base: 127 inches. Tires: 36 x 4.



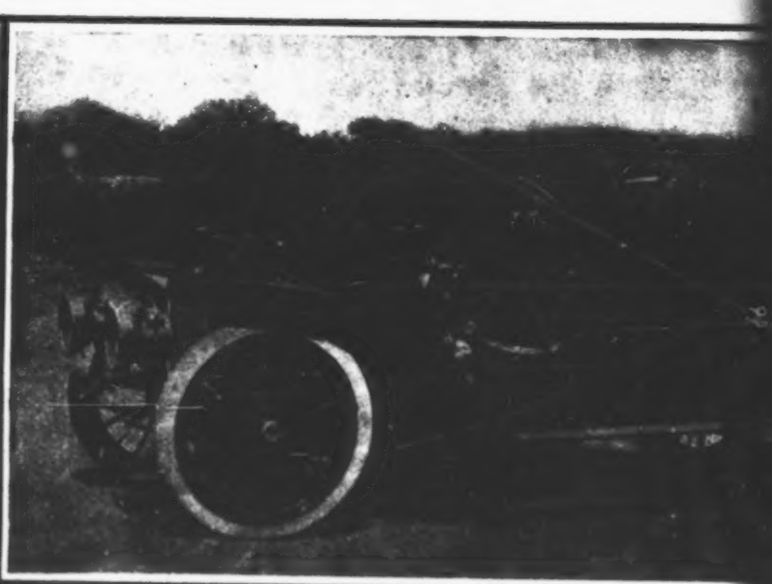
The New 24-32-Horse-Power Model of the America

Engine: 4.9 x 5.9, 4-cylinder, water-cooled. Transmission: 4-speed pr
Drive: Double side chain. Weight: 2,500 pounds. Wheel base: 10



The 45-Horse-Power, 7-Passenger Pierce Touring Car.

Engine: 5 x 5¼, 4-cylinder, water-cooled, with two separate high-tension ignition systems by batteries and high-tension magneto. Transmission: 3-speed progressive type operated by lever on steering column. Clutch: Cone. Drive: Shaft. Weight: 3,700 pounds. Wheel base: 124 inches. Tires: Front, 34 x 4; rear, 34 x 5.



The Pope-Toledo 40-Horse-Power, 7-Passenger Pullma

Engine: 4¾ x 5¼, 4-cylinder, water-cooled, with valves in heads. Transmission
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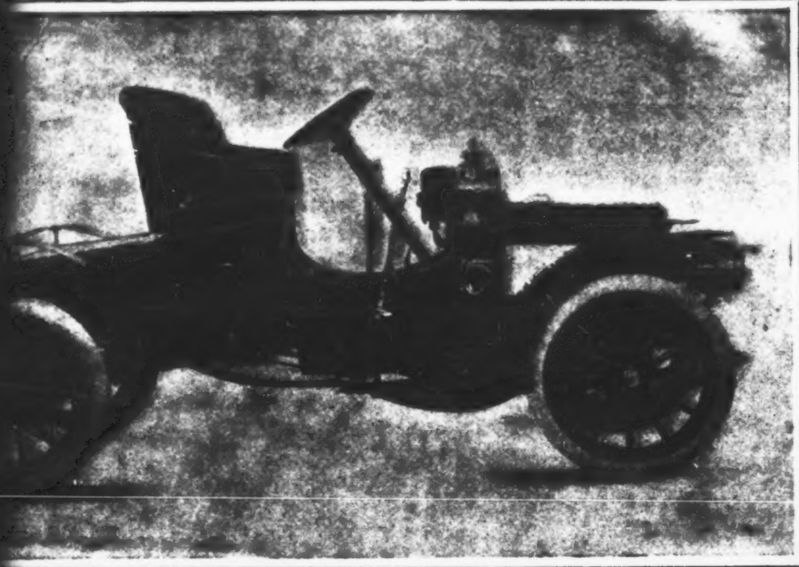
RS



The New 12-Horse-Power Franklin Light Runabout.

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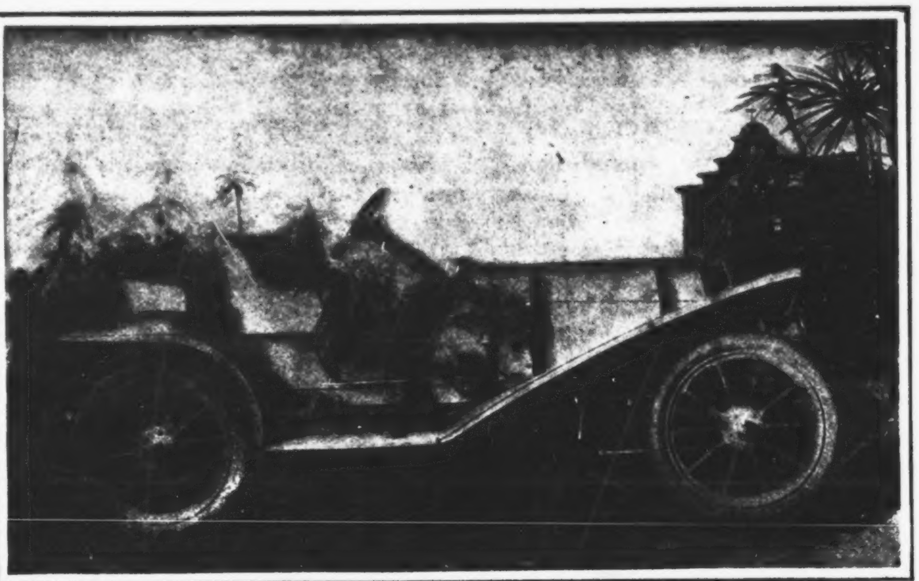

The Oldsmobile 35-Horse-Power Runabout With Rumble Seat.

Engine: 4⅛ x 4¾, 4-cylinder, water-cooled. Transmission: 3-speed selective type. Clutch: Reverse cone. Drive: Shaft. Weight: 2,600 pounds. Wheel base: 106 inches. Tires: Front, 34 x 3½; rear, 34 x 4.

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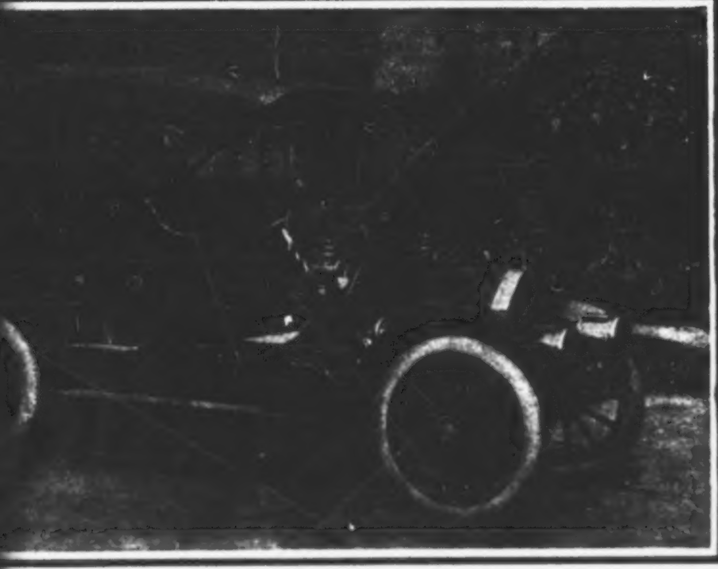
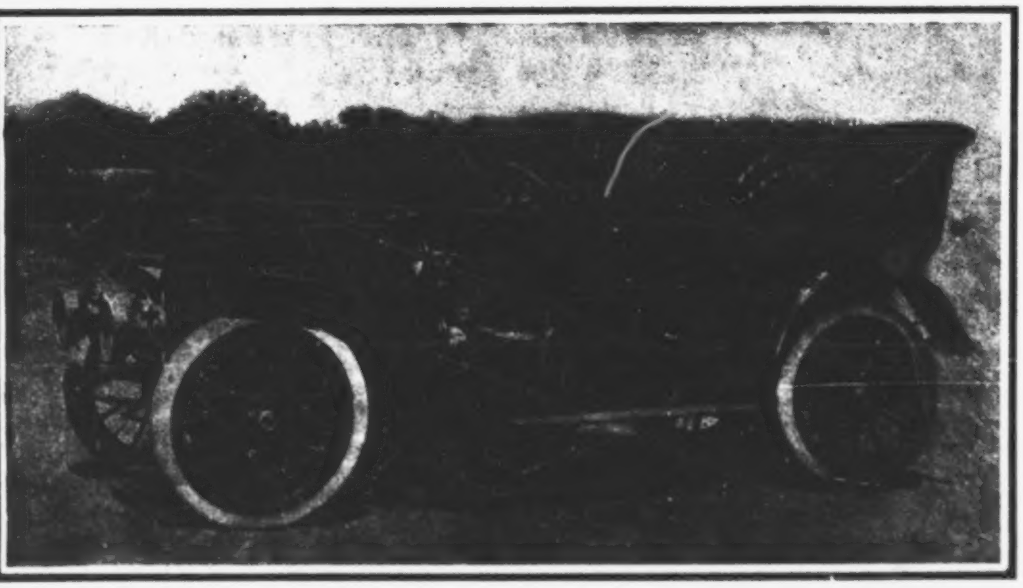
The New 24-32-Horse-Power Model of the American Mors Touring Car.

Engine: 4.9 x 5.9, 4-cylinder, water-cooled. Transmission: 4-speed progressive type. Clutch: Cone. Drive: Double side chain. Weight: 2,500 pounds. Wheel base: 106 inches. Tires: 36 x 4½.



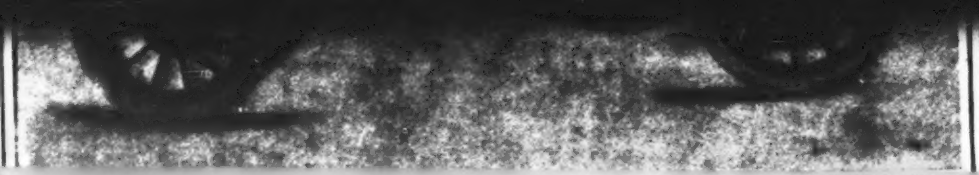
5-Horse-Power, 7-Passenger Pierce Touring Car.

4-cylinder, water-cooled, with two separate high-tension ignition systems by bat on magneto. Transmission: 3-speed progressive type operated by lever on steer h: Cone. Drive: Shaft. Weight: 3,700 pounds. Wheel base: 124 inches. rear, 24 x 5.



The Pope-Toledo 40-Horse-Power, 7-Passenger Pullman Touring Car.

Engine: 4¾ x 5¼, 4-cylinder, water-cooled, with valves in heads. Transmission: 4-speed selective type, direct drive on third speed. Clutch: Multiple-disk in gear box. Drive: Double side chain from separate countershaft. Weight: 3,200 pounds. Wheel base: 115 inches. Tires: Front, 36 x 3½; rear, 36 x 4½.



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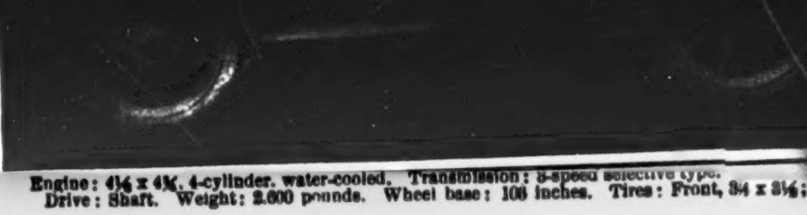
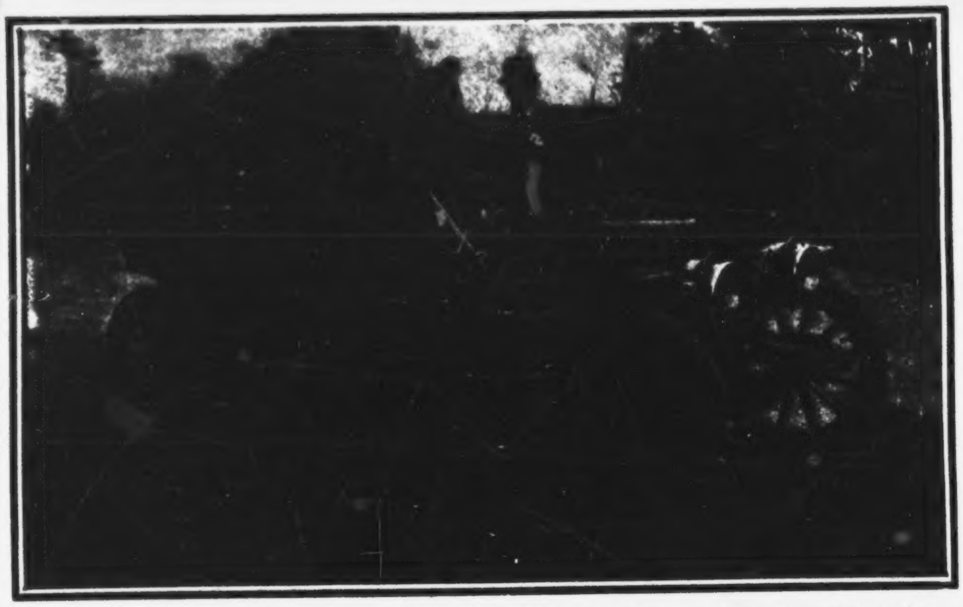


Engine: 4½ x 4¾, 4-cylinder, water-cooled. Transmission: 3-speed selective type. Drive: Shaft. Weight: 2,600 pounds. Wheel base: 108 inches. Tires: Front, 34 x 3½;



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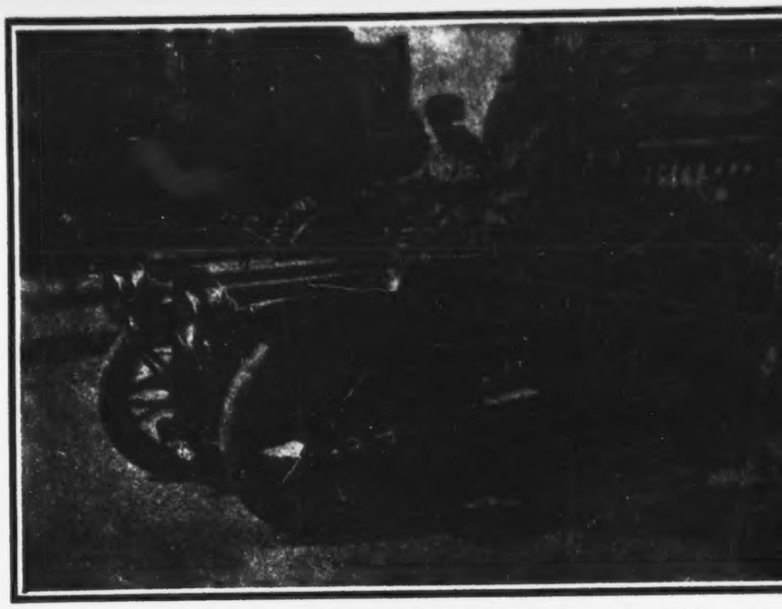

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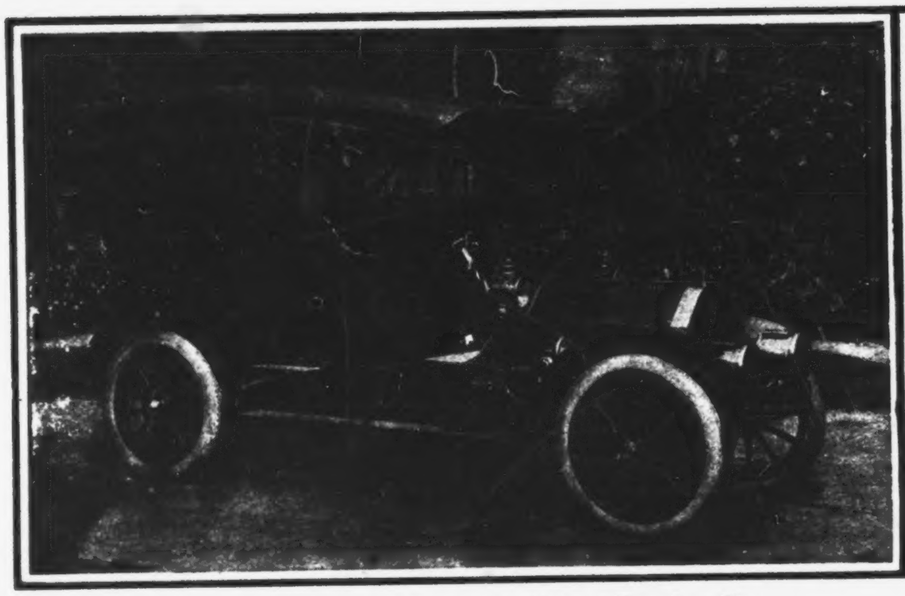

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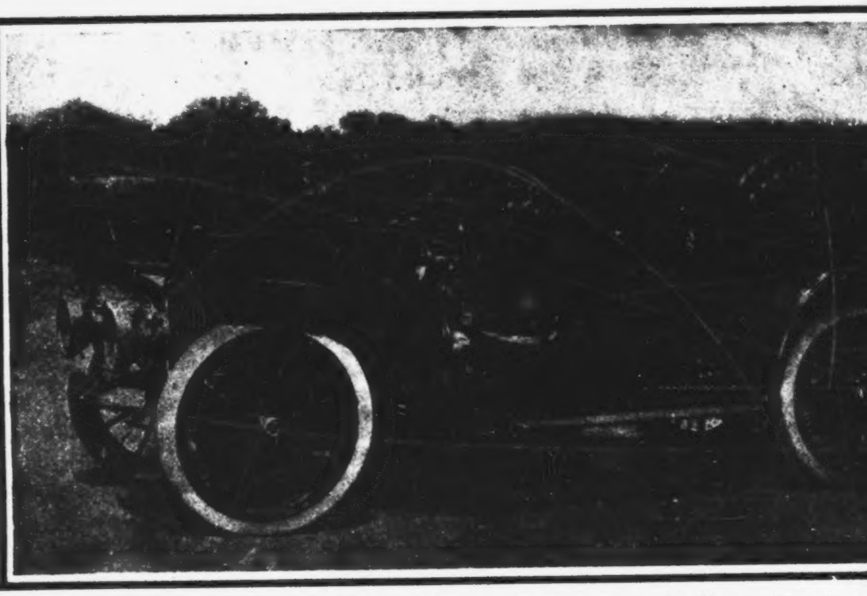

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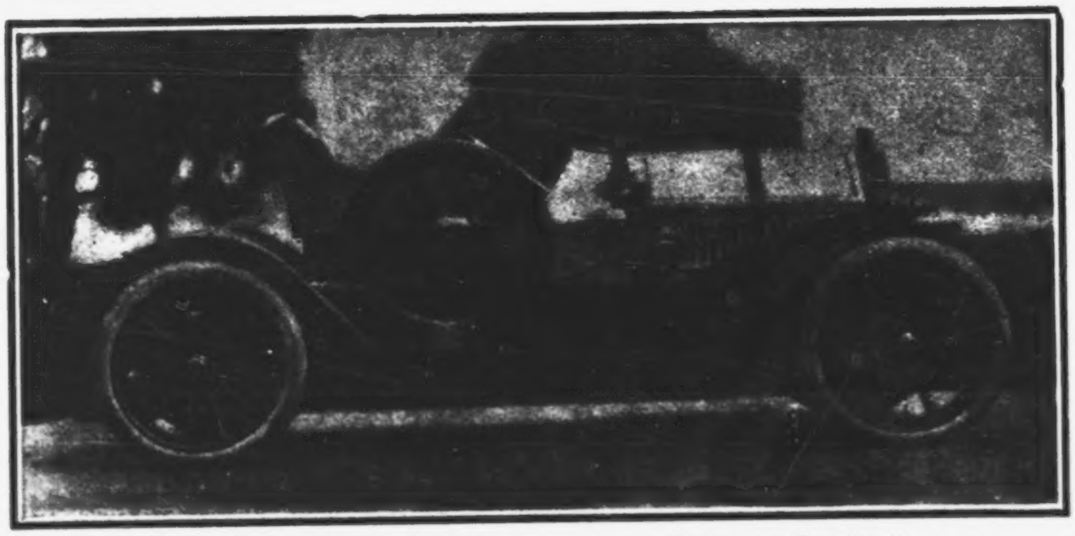


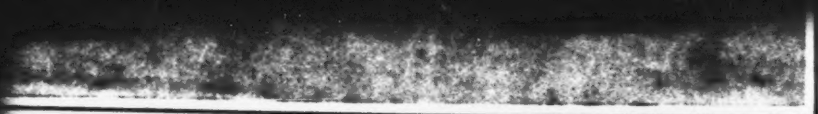
The Thomas 40-Horse-Power Two- or Three-Passenger Runabout.

Engine: 4¾ x 5, 4-cylinder, water-cooled. Transmission: 3-speed selective type fitted with roller bearings. Clutch: Cone; interlocked with brake. Drive: Shaft. Weight: 2,500 pounds. Wheel base: 112 inches. Tires: Front, 34 x 3½; rear, 34 x 4.

Electric Touring Runabout Capable of Making '5 Mile

Battery: 24 150 A. H. cells weighing 975 pounds. Motor: 2 L. P. Dri Speeds 10, 12, 14, 24, and 30. Weight: 3,450 lb. Tires: 34 x 4½ For fur current SUPPLEMENT.

SOME LEADING TYPES OF 1907 AUTOMOBILES.



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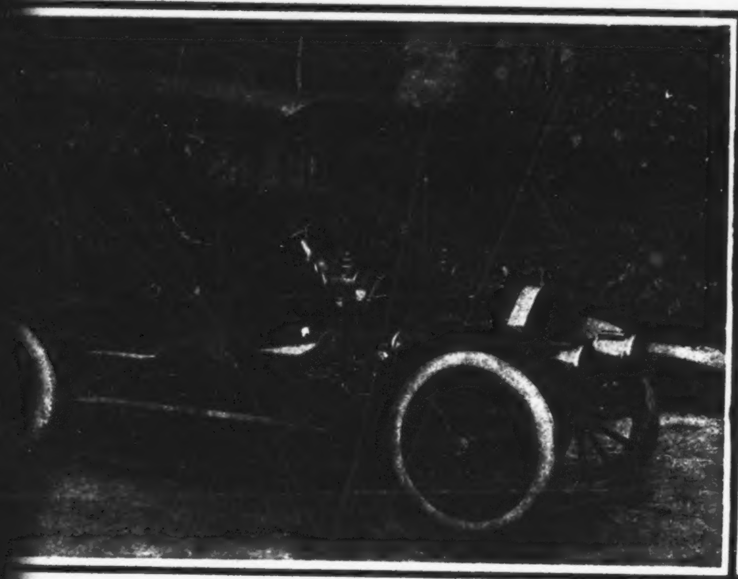

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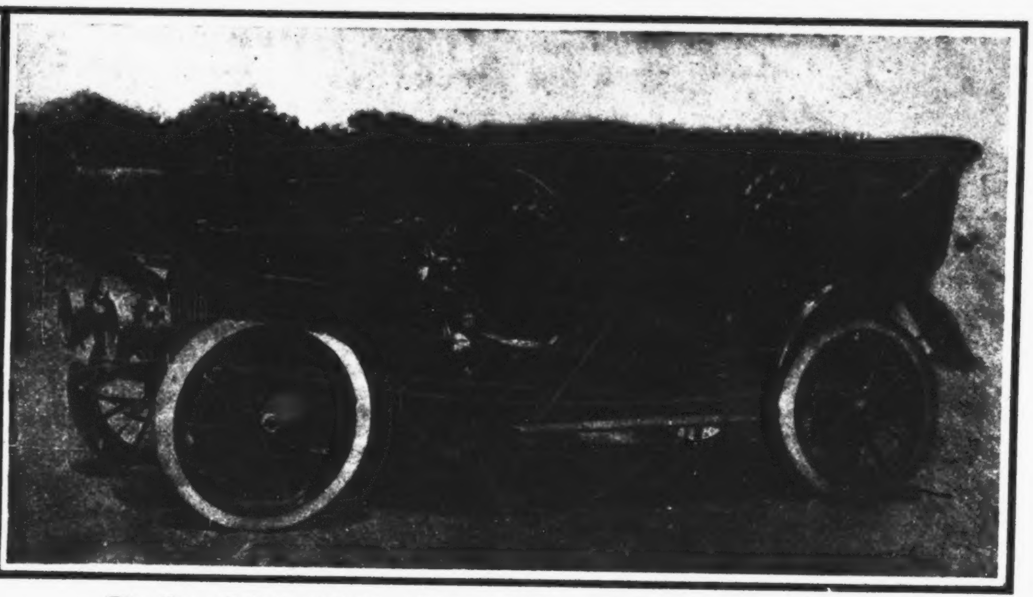

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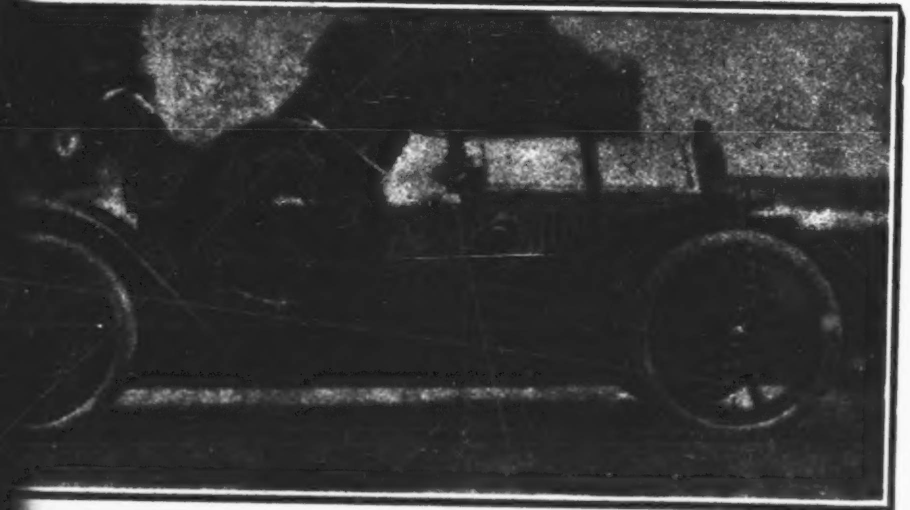

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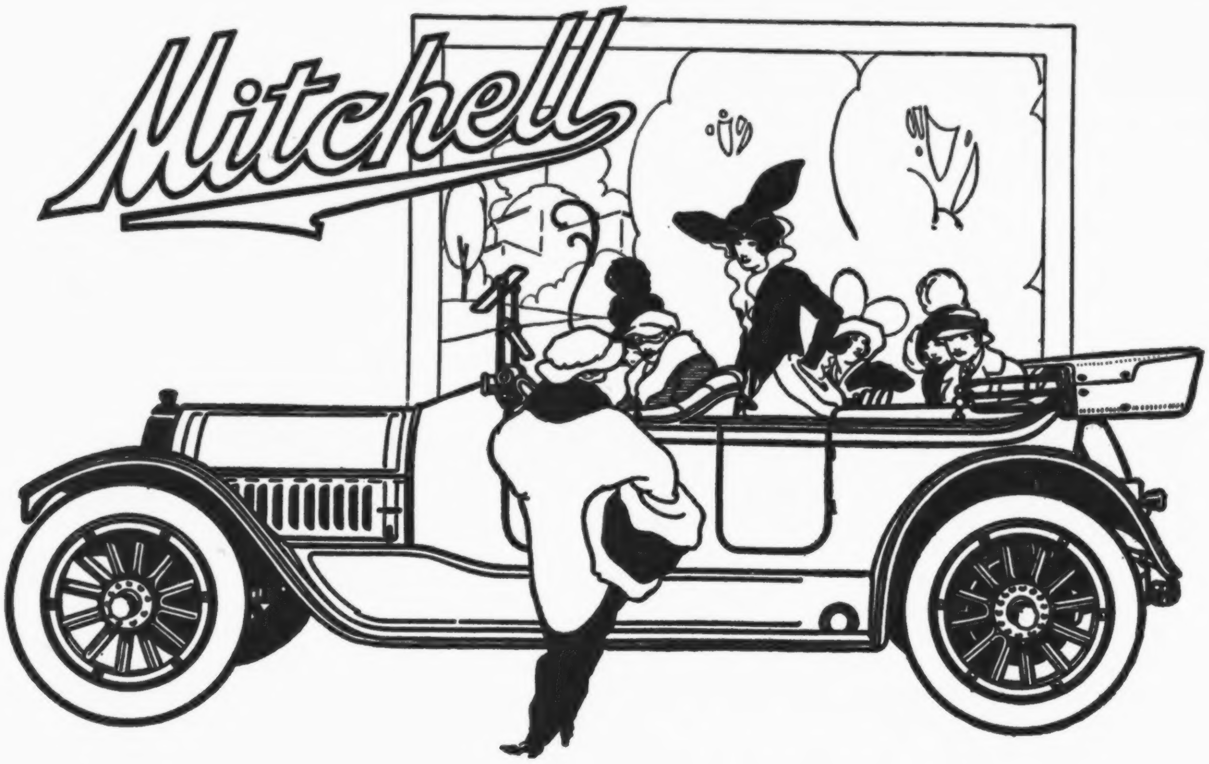
Electric Touring Runabout Capable of Making 75 Miles on a Charge.

Battery: 24 150 A. H. cells weighing 975 pounds. Motor: 2 H. P. Drive: Double chain. Speeds 10, 12, 14, 24, and 30. Weight: 2,450 lb. Tires: 34 x 4½. For further particulars see current SUPPLEMENT.

SOME LEADING TYPES OF 1907 AUTOMOBILES.

ADVERTISEMENT



Mitchell Sixes

Products of Long Experience

This company has been building popular priced sixes longe
any other concern in this country. Hence the sixes we offer are the product of many years of exper
in no sense experiments.

The *Mitchell Little Six*, which was known as the "Baby Six" i
is, in our opinion, the most logical investment in the automobile market. It is not only the sensible co
between big and little power and passenger capacity, but it has everything that any high-priced car can

It has quality that insures long life. It has the style of beau
the exacting mind demands. It has as much speed and power as any person can desire. It will hol
in any company and look classy and work perfectly for several years to come. Its equipment is
and details thereof sterling in character. The price, $1,895, brings this smart car to you ready for i
There is nothing left for you to buy—no extras—no appurtenances.

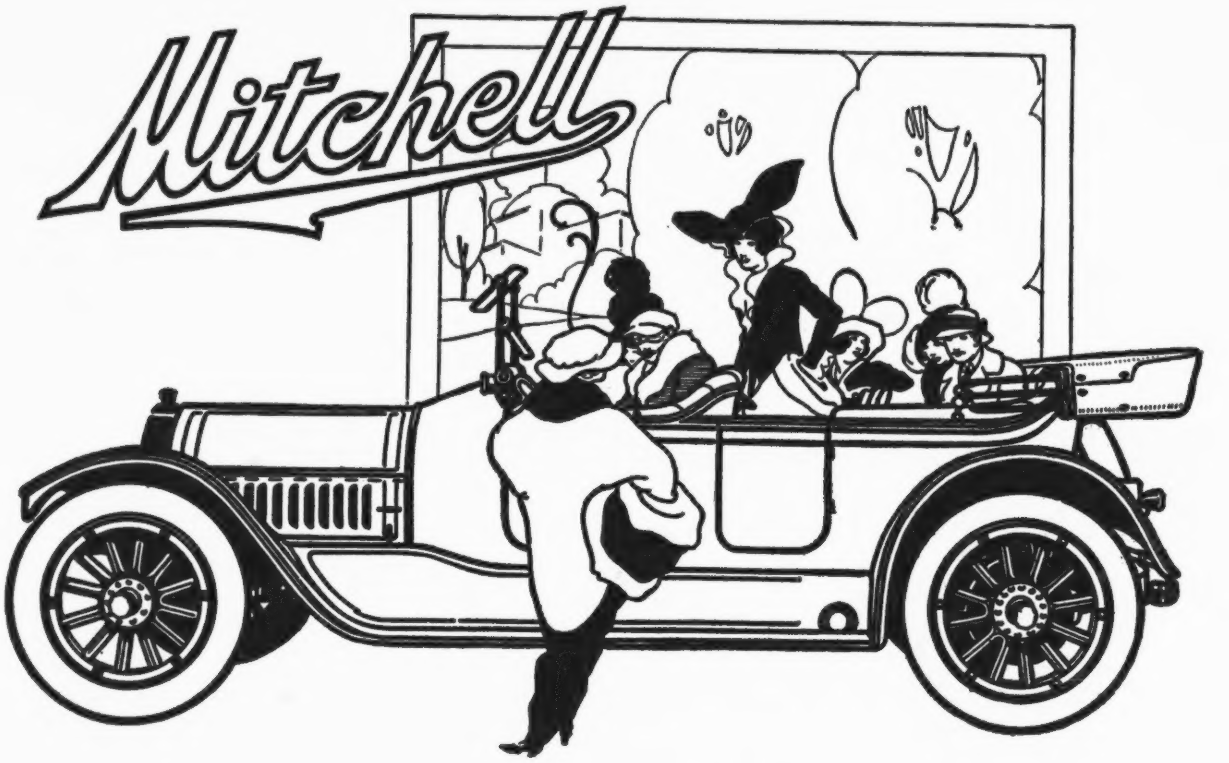
The *Mitchell Big Six* is the largest and best car at the price t
ever been produced. It is built along the same lines as the Little Six, save that it has 144-inch w
somewhat larger tires, greater passenger capacity. Yet the quality of the two are identical. The eq
precisely the same—the outward beauty similar. For a big family car the Big Six has no equal in A
there is nothing as good for less than $3,500 or $4,000. The price of the Mitchell Big Six is only $2

The *Mitchell Four* is intended for those who feel that they
afford either of the Sixes. It is the only four-cylinder car we make. We build it to meet the dema
persons who still like a four-cylinder car of class at a popular price. It has the same equipment as the
cars and sells for $1,595. We want you to look this car over minutely and then ask yourself if ther
cylinder car at anywhere near the price that can compare with this one in any detail.

Here is the Equipment for all the Mitchell Models Which is Included in the List Prices, as Given:

**Electric self-starter and generator—electric lights—electric horn—electric magnetic exploring lamp—mohair top and dust cov
Tungsten valves—Jiffy-quick-action side curtains—quick-action two-piece rain vision wind shield—demountable rims with one
—speedometer—double extra tire carrier—Bair bow holders—license plate bracket—pump—jack—and complete set of first-class**

VERTISEMENT



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This company has been building popular priced sixes longer than y other concern in this country. Hence the sixes we offer are the product of many years of experience and no sense experiments.

The *Mitchell Little Six*, which was known as the "Baby Six" in 1912, in our opinion, the most logical investment in the automobile market. It is not only the sensible compromise tween big and little power and passenger capacity, but it has everything that any high-priced car can offer you.

It has quality that insures long life. It has the style of beauty that exacting mind demands. It has as much speed and power as any person can desire. It will hold its place any company and look classy and work perfectly for several years to come. Its equipment is complete, details thereof sterling in character. The price, $1,895, brings this smart car to you ready for instant use. ere is nothing left for you to buy—no extras—no appurtenances.

The *Mitchell Big Six* is the largest and best car at the price that has r been produced. It is built along the same lines as the Little Six, save that it has 144-inch wheel base, ewhat larger tires, greater passenger capacity. Yet the quality of the two are identical. The equipment is cisely the same—the outward beauty similar. For a big family car the Big Six has no equal in America and re is nothing as good for less than $3,500 or $4,000. The price of the Mitchell Big Six is only $2,350.

The *Mitchell Four* is intended for those who feel that they cannot rd either of the Sixes. It is the only four-cylinder car we make. We build it to meet the demand of those ons who still like a four-cylinder car of class at a popular price. It has the same equipment as the other two and sells for $1,595. We want you to look this car over minutely and then ask yourself if there is a four- inder car at anywhere near the price that can compare with this one in any detail.

Here is the Equipment for all the Mitchell Models Which is Included in the List Prices, as Given:

Electric self-starter and generator—electric lights—electric horn—electric magnetic exploring lamp—mohair top and dust cover—Tungsten valves—Jiffy-quick-action side curtains—quick-action two-piece rain vision wind shield—demountable rims with one extra—speedometer—double extra tire carrier—Bair bow holders—license plate bracket—pump—jack—and complete set of first-class tools

Mitchell Sixes

Products of Long Experience

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Specifications of the Three Great Mitchell Models:

MITCHELL LITTLE SIX—Fifty horse-power—132-inch wheel base—36x4½-in. tires—two or five passenger capacity	**$1,895**
MITCHELL BIG SIX—Sixty horse-power—144-inch wheel base—37x5-in. tires—seven passenger capacity - - -	**$2,350**
MITCHELL FOUR—Forty horse-power—120-inch wheel base—4 cylinders—36x4½ in. tires—2 or 5 passenger capacity	**$1,595**

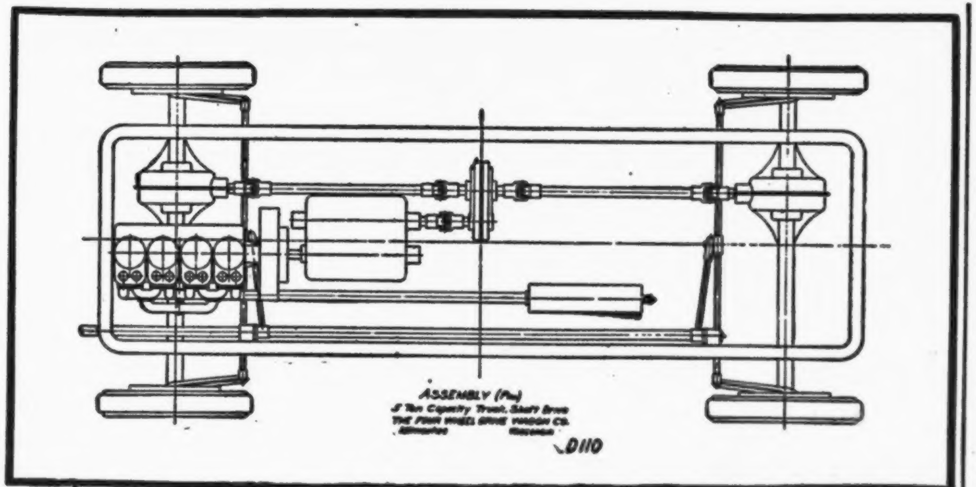
ALL PRICES F. O. B. RACINE, WIS.

Mitchell-Lewis Motor Co.

Racine, Wis, U.S.A.

Eighty Years of Faithful Service to the American Public

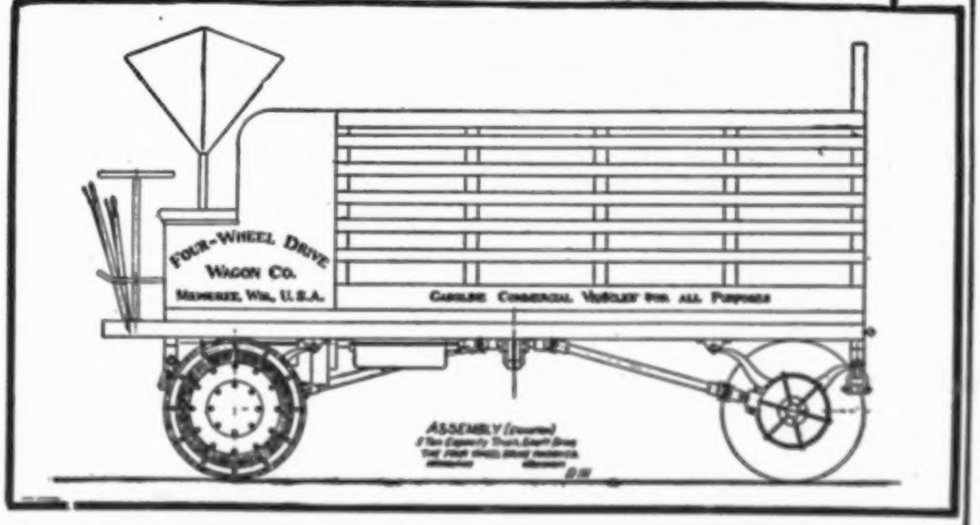
ADVERTISEMENT

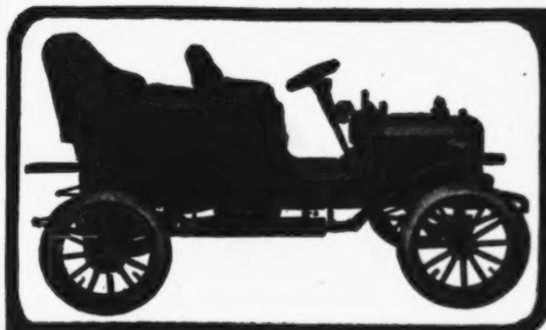

ASSEMBLY (Plan)
5 Ton Capacity Truck. Shaft Drive
THE FOUR WHEEL DRIVE WAGON CO.
D110

The Four-Wheel Drive

Five-ton Gasoline Truck. Does not slip or skid
Write for description and price

FOUR-WHEEL DRIVE WAGON CO., MILWAUKEE, WIS., U.S.A.


FOUR-WHEEL DRIVE
WAGON CO.
MILWAUKEE, WIS., U.S.A.
GASOLINE COMMERCIAL VEHICLES FOR ALL PURPOSES
ASSEMBLY (Elevation)
5 Ton Capacity Truck. Shaft Drive
THE FOUR WHEEL DRIVE WAGON CO.



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The REO

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thoroughly ri

Designed on right principles by a man who has
ciples in every kind of motor engineering for a life-t

Correctly applied as he has applied them for tw
spicuous success.

Of enduring and practical construction, which ext
details and manifests itself brilliantly in the co
efficiency of actual use.

Luxurious in finish and appointments, in kee
exacting demands of the present season.

Economical beyond any car of the day both in
tenance. Economical because correctly designed,
Economical because built by a man sure of his car
built on a large scale and built right from the first.

Design, mechanics, construction, finish, price—

Reo Runabout

8 H. P., 850 lbs., 25 miles per hour,

The Reo Motor Ca

R. M. Owens, Sales Man

Factory: LANSING, MICH. Sales Office: 138 West

Agents Throughout the United Sta

COLUMBIA automobiles are wholly
made in our own works, [illegible]

Cross-Section Morgan & Wright Clincher Tire for Automobiles.

THE VALUE OF PURE MA

A dead tire is fit only for a corpse.

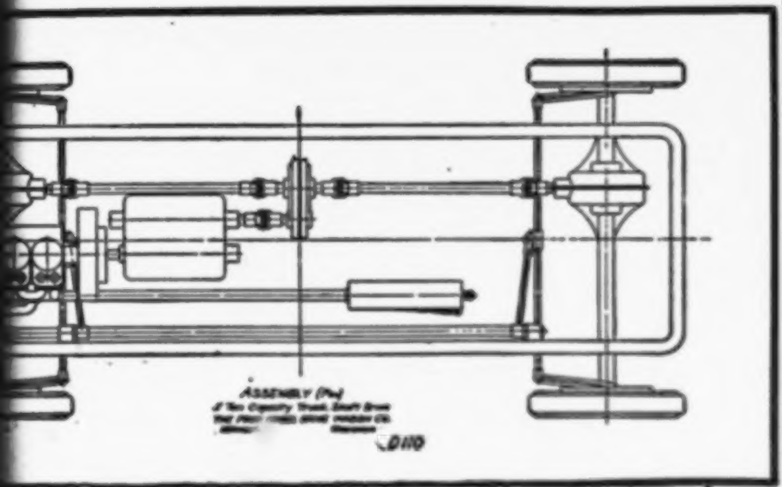
A real live man wants a real live tire—
plenty of elasticity—that grips the ground and
exhilarating and nerve-bracing.

The resiliency of a tire depends greatly o
of which it is made.

Now, we don't make *Morgan & Wright*
of scrap.

[illegible]

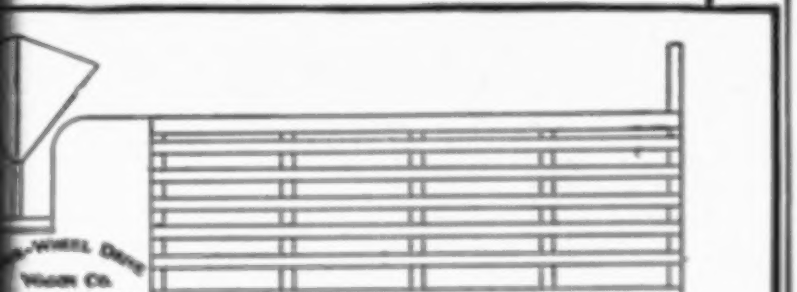
VERTISEMENT

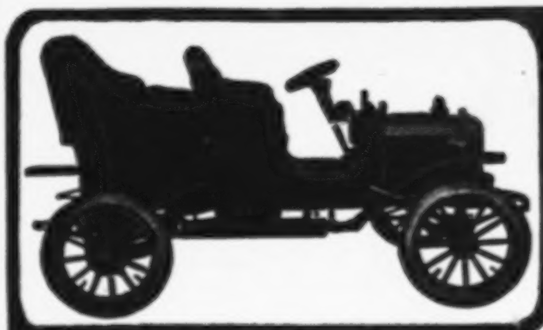


The Four-Wheel Drive

Five-ton Gasoline Truck. Does not slip or skid
Write for description and price

WHEEL DRIVE WAGON CO., MILWAUKEE, WIS., U.S.A.





REO

Reo Touring Car

16 h. p., 1,500 lbs., seating five passengers, detachable side-door tonneau, 35 miles per hour, price $1,250. Invented and built by R. E. Olds, inventor of the first practical gasoline runabout; and the foremost designer and builder of gasoline motor cars in the United States.

The REO Car
is
thoroughly right

Designed on right principles by a man who has studied those principles in every kind of motor engineering for a life-time.

Correctly applied as he has applied them for twenty years with conspicuous success.

Of enduring and practical construction, which extends to the smallest details and manifests itself brilliantly in the continuous speed and efficiency of actual use.

Luxurious in finish and appointments, in keeping with the most exacting demands of the present season.

Economical beyond any car of the day both in first cost and maintenance. Economical because correctly designed, simple and strong. Economical because built by a man sure of his car and his market, who built on a large scale and built right from the first.

Design, mechanics, construction, finish, price—all thoroughly right.

Reo Runabout

8 H. P., 850 lbs., 25 miles per hour, price $650

The Reo Motor Car Co

R. M. Owens, Sales Manager

Factory: LANSING, MICH. Sales Office: 138 West 38th St., NEW YORK

Agents Throughout the United States

Columbia

COLUMBIA automobiles are wholly

Cross-Section Morgan & Wright Clincher Tire for Automobiles.

THE VALUE OF PURE MATERIALS

A dead tire is fit only for a corpse.

A real live man wants a real live tire—one that has plenty of elasticity—that grips the ground and makes a ride exhilarating and nerve-bracing.

The resiliency of a tire depends greatly on the material of which it is made.

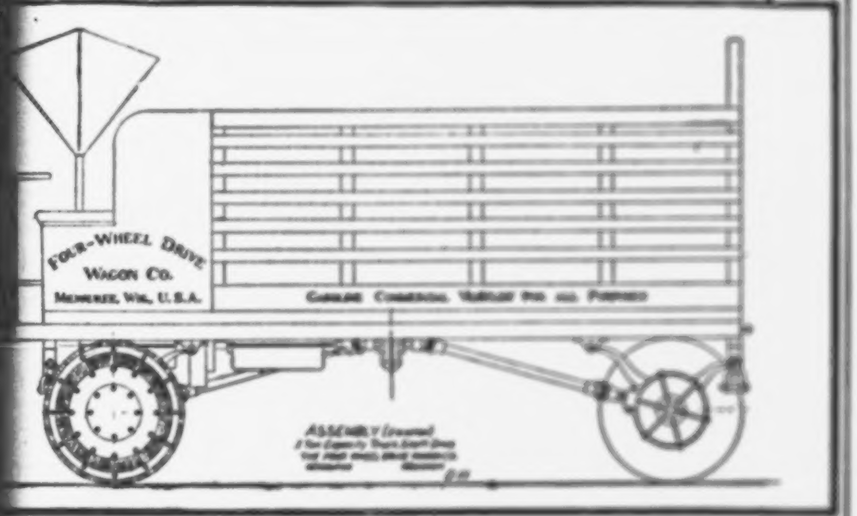
Now, we don't make *Morgan & Wright Clincher Tires* of scrap.

[illegible]

The Four-Wheel Drive

Five-ton Gasoline Truck. Does not slip or skid
Write for description and price

OUR-WHEEL DRIVE WAGON CO., MILWAUKEE, WIS., U.S.A.



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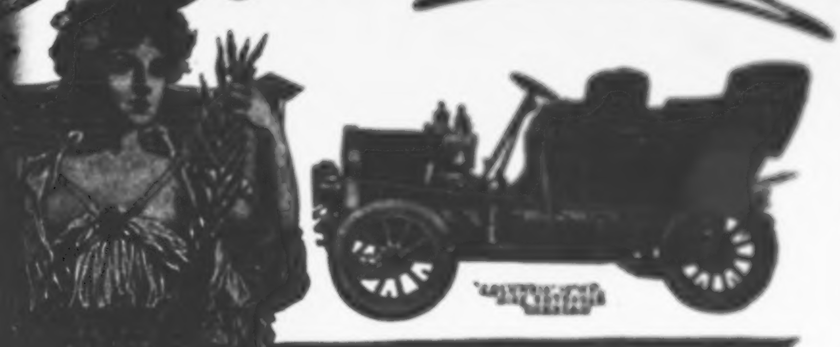
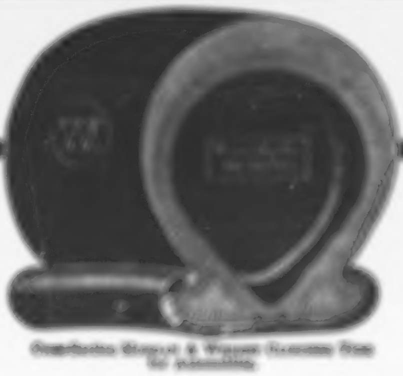


COLUMBIA automobiles are wholly made in our own works, insuring that uniformity of excellence in design, materials, and workmanship which has built up the Columbia name and reputation. The COLUMBIA line for 1905 includes 35-40 H. P. 4-cylinder Gasoline Cars with Side Entrance Tonneau, Royal Victoria, Landaulet, or Limousine bodies, $4,000 to $5,500; 18 H. P. 2-cylinder Gasoline Side Entrance Tonneau, $1,750; 12-14 H. P. 2-cylinder Gasoline Tonneau, $1,500; Electric Victoria-phaeton with hood and "de luxe" features throughout, the handsomest and most efficient light electric carriage ever offered to the public, $1,350; light Electric Runabout, $900; Electric Town Carriages of the coach class and Commercial Vehicles.

We issue three catalogues describing respectively Columbia Gasoline Cars, Columbia Electric Carriages, and Columbia Electric Delivery Wagons and Trucks. Both in print and in illustration these are the most artistic automobile books ever distributed. In writing please state which Catalogue is desired.



THE VALUE OF PURE MATERIALS

A dead tire is fit only for a corpse.

A real live man wants a real live tire—one that has plenty of elasticity—that grips the ground and makes a ride exhilarating and nerve-bracing.

The resiliency of a tire depends greatly on the material of which it is made.

Now, we don't make *Morgan & Wright Clincher Tires* of scrap.

Worn out boots and shoes forsooth!

Lifeless, used-up materials that are chopped up and washed—not wholly cleansed.

A tire made from this "weary-worn" material will have its weak spots—will be constantly sick and ailing—will give you a melancholy, miserable ride! You will early rejoice its untimely demise!

The Morgan & Wright Clincher Tire
FOR AUTOMOBILES

is full of life, resiliency, grip and vim!

We make it from pure, crude Para rubber—rubber that possesses the most resiliency of any rubber in the world.

A finely textured, close-grained rubber that will wear like iron.

All the fabric in this tire is "frictioned" with this pure rubber. The whole tire is full of bounce and life and strength.

Then, to insure added wear, each *Morgan & Wright Clincher Tire* is given an additional thickness of rubber on the tread (see diagram), which will not soften, split, crack, or scale.

MORGAN & WRIGHT, Chicago

NEW YORK DAYTON DETROIT ATLANTA ST. LOUIS SAN FRANCISCO

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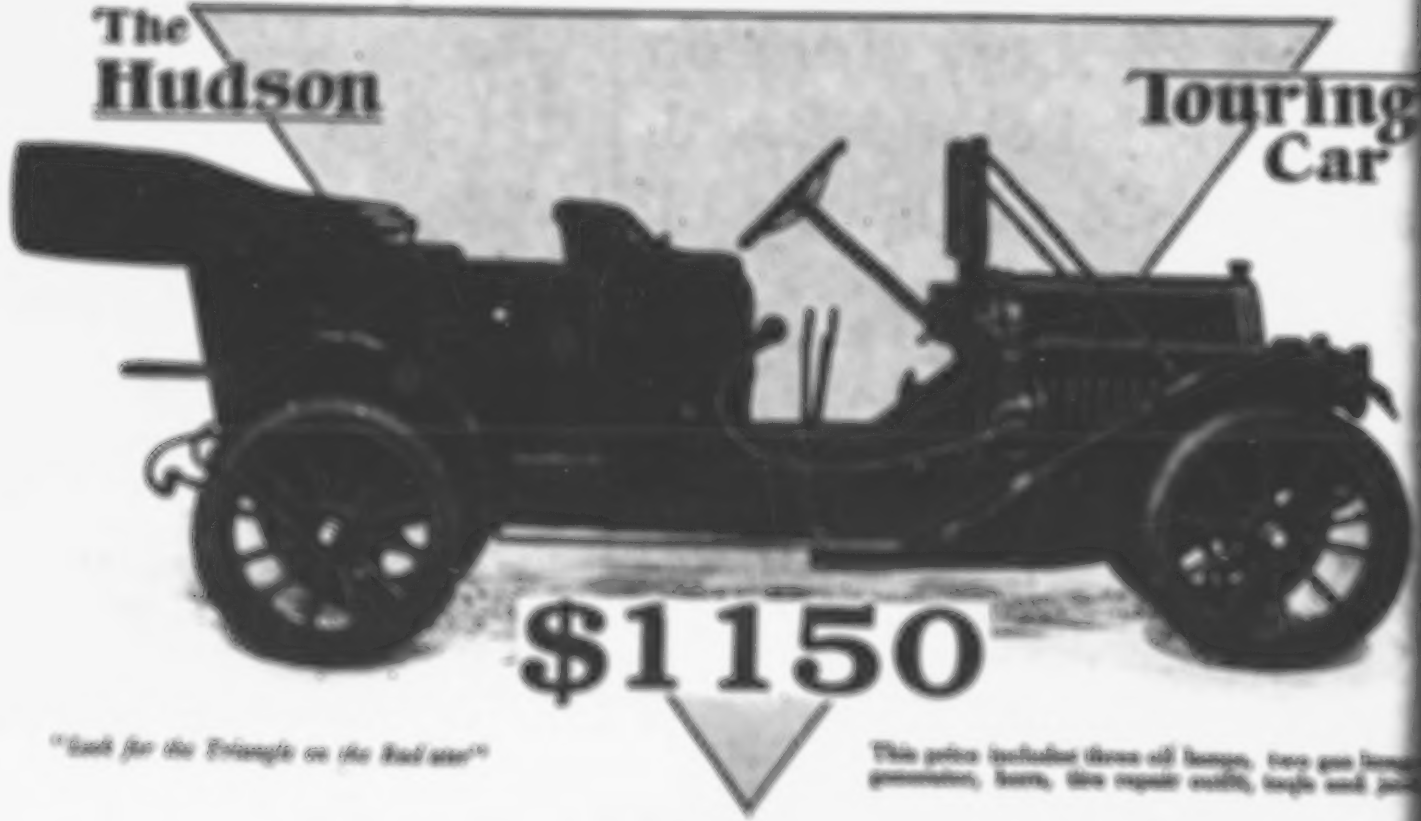


"Look for the Triangle on the Radiator"

This price includes three oil lamps, two gas lamps, generator, horn, tire repair outfit, tools and ja

Strength—Room

Think what this car is—110 inch wheel base; four cylinder motor; 32 inch wheels; 32 inch tires all around, five passenger capacity—and the price $1150.

Never before has there been offered such a car at such a price. This is not just a hasty statement of our own. Can you think yourself, of any other four-cylinder, 110 inch wheel base, five passenger car at $1150 or less?

You will find these features in other cars, but those cars sell for at least $100 or $200 more. You will find still other cars selling for less than $1150, but they do not have our high grade features. The Hudson Touring car is the best **value**, the best **buy** yet offered by any automobile manufactur mean you get relatively more for you any other car.

Beauty—Refin

There are certain proved features o struction which any car must have before ered an up-to-date, high-grade car.

The Hudson has those features. who show you the same features, w price; it is lower than their's. To tho below $1150, we point to our high-gr do not have them.

From one class we are set off from another by our quality.

The Hudson is *strong*, because the careful plans of a great engineer have been expressed by the best material that money can buy.

It has plenty of *room*—many cars are big and heavy without being roomy. The Hudson is big and roomy without being too heavy.

The Hudson has *beauty*—not merely the beauty of paint—but the beauty of balance, of perfect proportion. Many touring cars look "bunched." In the Hudson over-all length, hood, body, wheels, harmonize to make a whole effect that pleases the eye.

No other touring car at or near the price has so many features and refinements in common with the most expensive cars.

High Grade Hudson Features

The motor is the Renault Type, patterned after the famous Renault motors of France. It is the same type of motor as used in the Hudson Roadster; four cylinders "en bloc;" vertical, water cooled, long stroke, 20 to 22 H. P. Due to its long stroke this motor pulls quietly and evenly at low engine speeds.

Transmission is selective, sliding gear; three speeds forward and one reverse—the same type

nothing untried. No low-priced touring car is so near mechanically perfect.

Hudson Refinements

When we say the Hudson has refinement, we mean that many little things, of small importance, one by one, but meaning in their total, comfort and satisfaction to the owner, have been put into this car.

See how the rear fenders are fitted against the body; how the fenders throughout are absolutely mud-proof. Such fenders are a feature of very high-priced cars.

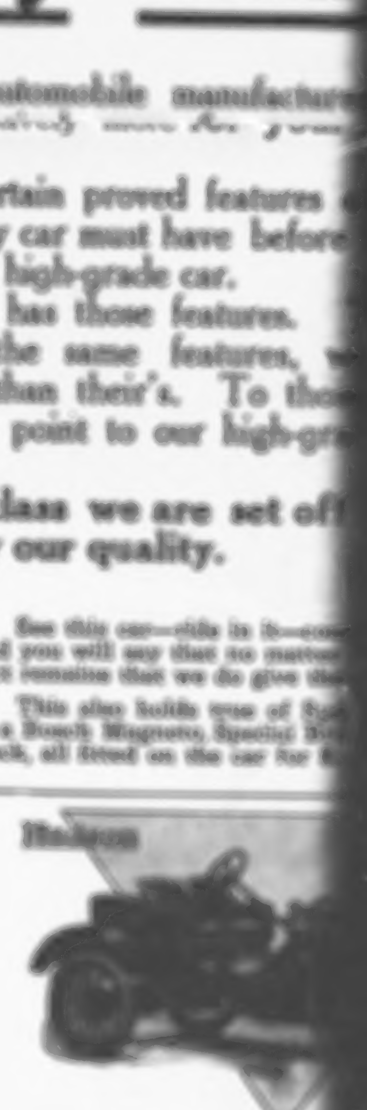
The unusual leg room and big 16 inch steering wheel mean comfort. No standard touring car at any price provides so much leg room as the Hudson.

Doors are big, hung on heavy curved hinges, allowing maximum entrance and exit space.

The Toe boards, spring steps and running boards are beautiful aluminum castings. No bolts show through the foot board, nothing to catch a dress or coat or look unsightly. The floor board is covered with [illegible] white rubber of best quality, except where driver's heels rest and this part is reinforced

See this car—ride in it—co and you will say that no matter fact remains that we do give the

This also holds true of th of a Bosch Magneto, Special Bl Black, all fitted on the car for



Decrease in the price of the

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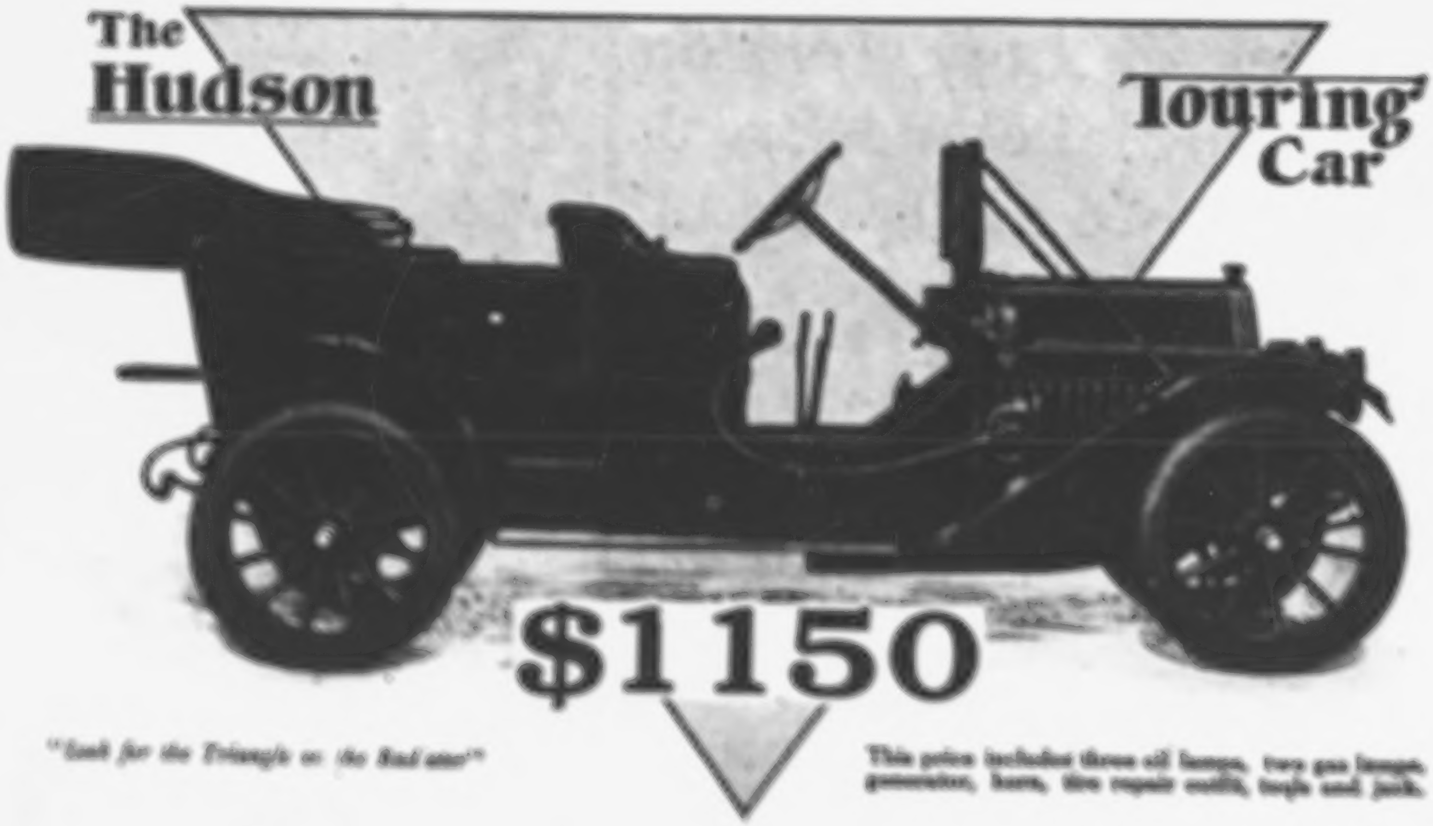

"Look for the Triangle on the Radiator"

This price includes three oil lamps, two gas lamps, generator, horn, tire repair outfit, tools and jack.

trength—Room

Beauty—Refinement

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will find these features in other cars, but sell for at least $100 or $200 more. You still other cars selling for less than $1150, do not have our high grade features. The ouring car is the best value, the best buy yet offered by any automobile manufacturer. By this, we mean you get relatively more for your money than in any other car.

There are certain proved features of motor car construction which any car must have before it can be considered an up-to-date, high-grade car.

The Hudson has those features. To those makers who show you the same features, we point to our price; it is lower than their's. To those who offer cars below $1150, we point to our high-grade features; they do not have them.

From one class we are set off by our price; from another by our quality.

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Hudson Refinements

When we say the Hudson has refinement, we mean that many little things, of small importance, one by one, but meaning in their total, comfort and satisfaction to the owner, have been put into this car.

See how the rear fenders are flush against the body; how the fenders throughout are absolutely mud-proof. These fenders are a feature of very high-priced cars.

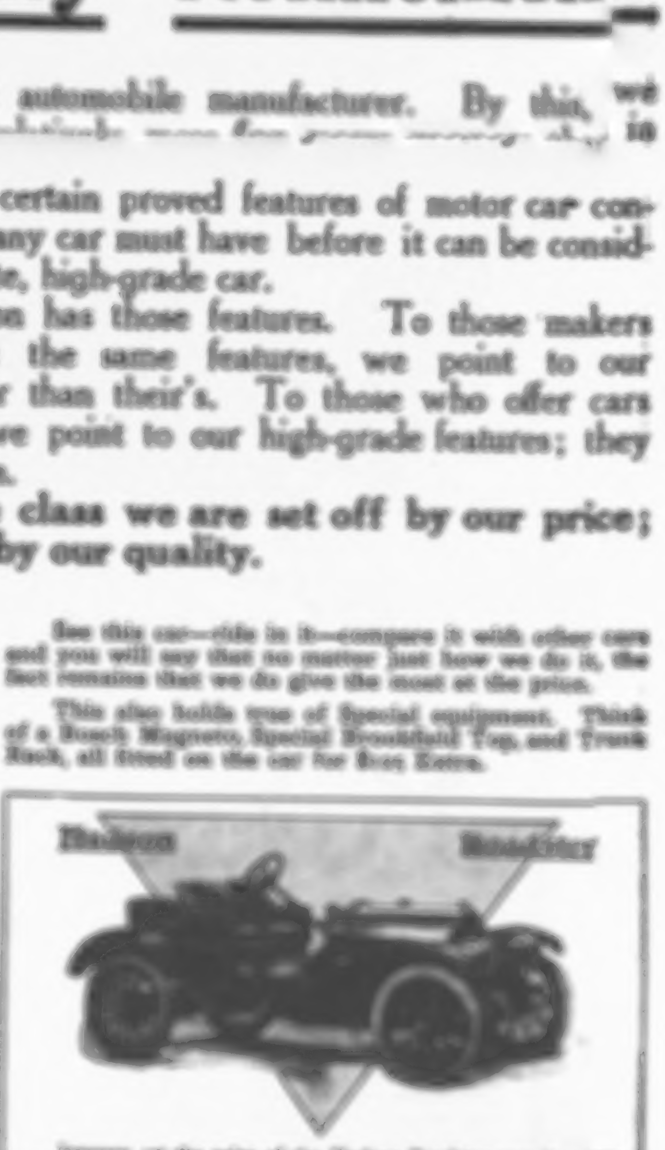
The unusual leg room and big 18 inch steering wheel mean comfort. No standard touring car at any price provides as much leg room as the Hudson.

Doors are big, hung on heavy curved hinges, allowing spacious entrance and exit space.

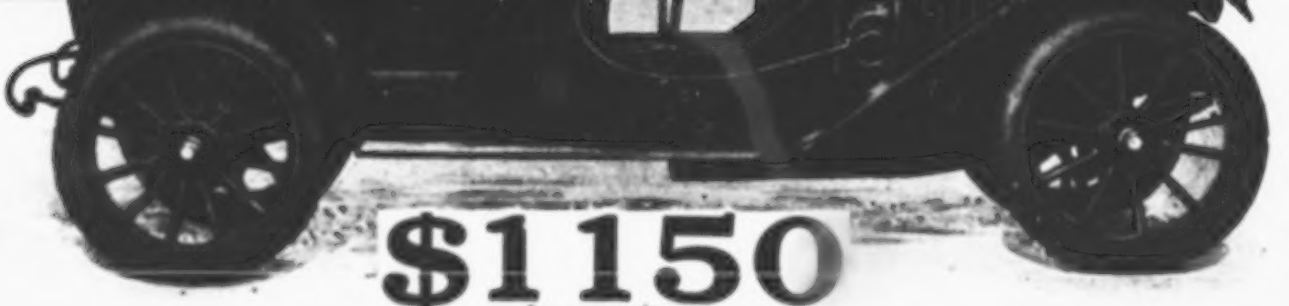
The toe boards, spring steps and running boards are beautiful aluminum castings. No bolts show through the foot board, nothing to catch a dress or coat or look unsightly. The floor board is covered with genuine white rubber of best quality, except where driver's heels rest and this part is reinforced

See this car—ride in it—compare it with other cars and you will say that no matter just how we do it, the fact remains that we do give the most at the price.

This also holds true of Special equipment. Think of a Bosch Magneto, Special Brookfield Top, and Trunk Rack, all fitted on the car for $[illegible] Extra.



[illegible] the price of the Hudson Roadster [illegible]



$1150

"Look for the Triangle on the Radiator"

This price includes three oil lamps, two gas lamps, generator, horn, tire repair outfit, tools and jack.

Strength—Room Beauty—Refinemen

Think what this car is—110 inch wheel base; four cylinder motor; 32 inch wheels; 3½ inch tires all around; five passenger capacity—and the price $1150.

Never before has there been offered such a car at such a price. This is not just a hasty statement of our own. Can you think yourself, of any other four-cylinder, 110 inch wheel base, five passenger car at $1150 or less?

You will find these features in other cars, but those cars sell for at least $100 or $200 more. You will find still other cars selling for less than $1150, but they do not have our high grade features. The Hudson Touring car is the best **value,** the best **buy** yet offered by any automobile manufacturer. By this, mean you get relatively more **for your money** than any other car.

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The Hudson is *strong*, because the careful plans of a great engineer have been expressed by the best material that money can buy.

It has plenty of *room*—many cars are big and heavy without being roomy. The Hudson is big and roomy without being too heavy.

The Hudson has *beauty*—not merely the beauty of paint—but the beauty of balance, of perfect proportion. Many touring cars look "bunched." In the Hudson over-all length, hood, body, wheels, harmonize to make a whole effect that pleases the eye.

No other touring car at or near the price has so many features and refinements in common with the most expensive cars.

High Grade Hudson Features

Its motor is the Renault Type, patterned after the famous Renault motors of France. It is the same type of motor as used in the Hudson Roadster; four cylinders "en bloc;" vertical, water cooled, long stroke, 20 to 25 H. P. Due to its long stroke this motor pulls quietly and evenly at low engine speeds.

Transmission is selective, sliding gear; three speeds forward and one reverse—the same transmission as found on the highest priced cars.

The spring suspension is the same as used on cars costing up to [illegible]. Semi-elliptic front and ¾ elliptic rear, unusually long, mounted with heavy, strong fittings. Clutch is leather faced cone type; rear axle semi-floating, shaft driven. Front axle "I" beam section, drop forged, of carefully selected, high grade steel.

There is nothing experimental about this car—nothing untried. No low-priced touring car is so near mechanically perfect.

Hudson Refinements

When we say the Hudson has refinement, we mean that many little things, of small importance, one by one, but meaning in their total, comfort and satisfaction to the owner, have been put into this car.

See how the rear fenders are inset against the body; how the fenders throughout are absolutely mud-proof. Inset fenders are a feature of very high-priced cars.

The unusual leg room and big 18 inch steering wheel mean *comfort*. No standard touring car at any prices provides as much leg room as the Hudson.

Doors are big, hung on heavy curved hinges, allowing maximum entrance and exit space.

The Toe boards, spring steps and running boards are beautiful aluminum castings. No bolts show through the foot board, nothing to catch a dress or coat or look unsightly. The floor board is covered with pyramided white rubber of best quality, except where driver's heels rest and this part is reinforced by an aluminum plate.

The foot accelerator is something entirely new in design and does not tire the foot.

The body is built with wheel-housing, that is, the body curves out over the rear wheels, allowing a big, comfortable, roomy tonneau. Car is finished and upholstered like the best.

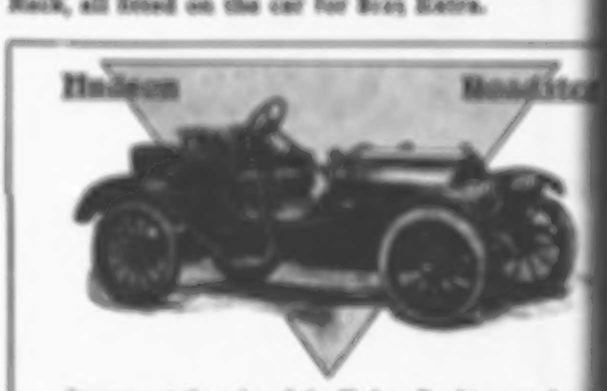
Why you get more value in a Hudson

We have been asked how we can give so much for the money and our answer is—Because we know how. Two engineers could undertake each to build a railroad from New York to Chicago—roads to be of equal length; one man would build a better road for the same money than the other, or the same road for less money than the other. It is so in the automobile business; one out of many will build a better car at less money than another. It is simply a question of ability.

The Hudson will exhibit at the Madison Square Garden and Chicago Shows.

See this car—ride in it—compare it with other and you will say that no matter just how we do i fact remains that we do give the most at the price

This also holds true of Special equipment. T of a Bosch Magneto, Special Brookfield Top, and T Rack, all fitted on the car for $125 Extra.



January 1st the price of the Hudson Roadster was incr to $1000. This includes 32x3½ tires front and rear; oil lamps; two gas lamps; generator; tire repair kit; tools jack.

The Hudson Roadster is America's biggest, best and best built low-priced car. Several thousand of the in the hands of owners and giving complete satisfaction.

The Hudson won a 24-hour race in Seattle in Sep defeating many high-priced cars. This was its first race.

Mr. E. M. Nelson, a prominent business man of drove his Hudson car from Detroit to New Haven, Con at an expense of less than one cent per mile for oil and ga and without making a repair.

Mr. Geo. D. Smith drove a Hudson Roadster from Island, N. Y., to Pleasant City, Fla., without touching a coil, spark plug or making a mechanical adjustment.

Three important facts are brought out in hundreds o thousand letters received from Hudson owners: "Low ga and oil consumption"—"Wonderful mechanical efficiency rides as easy as the most expensive cars."

Remember the Hudson Roadster is not an imitation big car—it is a big car. It is big in design, in material, and all-around value. Look at our price on extra equip Bosch magneto, Atlas top, Prestolite tank and for $150 extra.

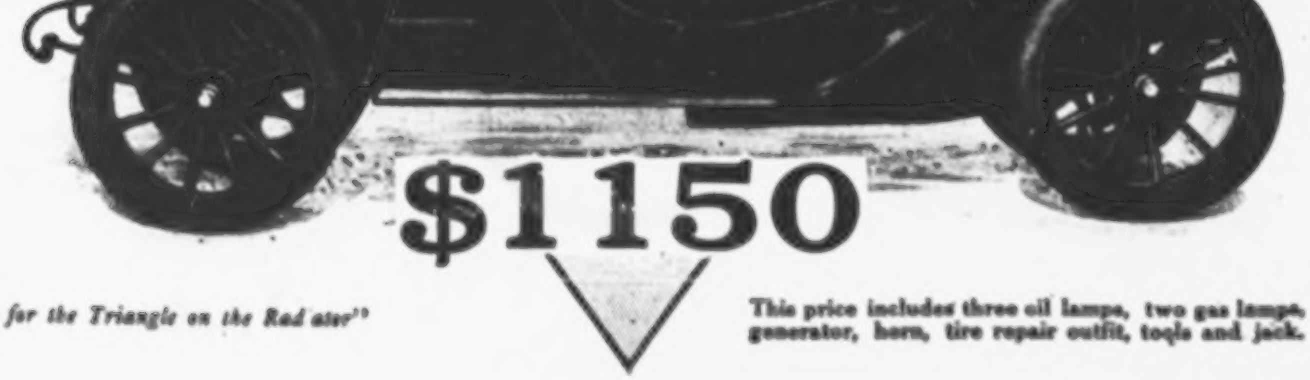
Mailing this coupon to-day will bring you our catalogue and complete information about both the Hudson Touring Car and Hudson Roadster.

CUT OUT AND MAIL. S. L.

Hudson Motor Car Co.,
Detroit, Mich.
Send New Hudson catalog to

Hudson Motor Car Company, Detroit, Michi

Member A. L. A. M. *Licensed under Selden Patent*



"Look for the Triangle on the Rad ator"

This price includes three oil lamps, two gas lamps, generator, horn, tire repair outfit, tools and jack.

trength—Room Beauty—Refinement

t what this car is—110 inch wheel base; four otor; 32 inch wheels; 3½ inch tires all around; nger capacity—and the price $1150.

r before has there been offered such a car price. This is not just a hasty statement of Can you think yourself, of any other four-cylin- inch wheel base, five passenger car at $1150

will find these features in other cars, but sell for at least $100 or $200 more. You still other cars selling for less than $1150, do not have our high grade features. The ouring car is the best **value,** the best **buy** yet offered by any automobile manufacturer. By this, we mean you get relatively more **for your money** than in any other car.

There are certain proved features of motor car construction which any car must have before it can be considered an up-to-date, high-grade car.

The Hudson has those features. To those makers who show you the same features, we point to our price; it is lower than their's. To those who offer cars below $1150, we point to our high-grade features; they do not have them.

From one class we are set off by our price; from another by our quality.

n is *strong*, because the careful plans ineer have been expressed by the best money can buy.

ty of *room*—many cars are big and being roomy. The Hudson is big and being too heavy.

son has *beauty*—not merely the beauty the beauty of balance, of perfect pro- y touring cars look "bunched." In ver-all length, hood, body, wheels, har- s a whole effect that pleases the eye. touring car at or near the price has so and refinements in common with the h cars.

rade Hudson Features

is the Renault Type, patterned after Renault motors of France. It is the motor as used in the Hudson Roadster; "en bloc;" vertical, water cooled, long ng H. P. Due to its long stroke this quietly and evenly at low engine speeds. ssion is selective, sliding gear; three rd and one reverse—the same type und on the highest priced cars. ng suspension is the same as used on p to $[illegible]. Semi-elliptic front and ¾ unusually long, mounted with heavy s. Clutch is leather faced cone type; i-floating, shaft driven. Front axle tion, drop forged, of carefully selected teel.

nothing experimental about this car—nothing untried. No low-priced touring car is so near mechanically perfect.

Hudson Refinements

When we say the Hudson has refinement, we mean that many little things, of small importance, one by one, but meaning in their total, comfort and satisfaction to the owner, have been put into this car.

See how the rear fenders are inset against the body; how the fenders throughout are absolutely mud-proof. Inset fenders are a feature of very high-priced cars.

The unusual leg room and big 18 inch steering wheel mean *comfort*. No standard touring car at any price provides as much leg room as the Hudson.

Doors are big, hung on heavy curved hinges, allowing maximum entrance and exit space.

The Toe boards, spring steps and running boards are beautiful aluminum castings. No bolts show through the foot board, nothing to catch a dress or coat or look unsightly. The floor board is covered with pyramided white rubber of best quality, except where driver's heels rest and this part is reinforced by an aluminum plate.

The foot accelerator is something entirely new in design and does not tire the foot.

The body is built with wheel-housing, that is, the body curves out over the rear wheels, allowing a big, comfortable, roomy tonneau. Car is finished and upholstered like the best.

Why you get more value in a Hudson

We have been asked how we can give so much for the money and our answer is: Because we know how. Two engineers could undertake each to build a railroad from New York to Chicago—roads to be of equal length; one man would build a better road for the same money than the other, or the same road for less money than the other. It is so in the automobile business; one set of men will build a better car at less money than another. It is simply a question of ability.

The Hudson will exhibit at the Madison Square Garden and Chicago Shows.

See this car—ride in it—compare it with other cars and you will say that no matter just how we do it, the fact remains that we do give the most at the price.

This also holds true of Special equipment. Think of a Bosch Magneto, Special Brookfield Top, and Trunk Rack, all fitted on the car for $[illegible] Extra.

Hudson
Roadster

January 1st the price of the Hudson Roadster was increased to $[illegible]. This includes 32x3½ tires *front* and rear; three oil lamps; two gas lamps; generator; tire repair kit; tools and jack.

The Hudson Roadster is America's biggest, best looking and best built low-priced car. Several thousand of them are in the hands of owners and giving complete satisfaction.

The Hudson won a cup race in Seattle in September, defeating many high-priced cars. This was its first race.

Mr. E. H. Nelson, a prominent business man of Detroit, drove his Hudson car from Detroit to New Haven, Conn., at an expense of less than one cent per mile for oil and gasoline and without making a repair.

Mr. Geo. D. Smith drove a Hudson Roadster from Long Island, N. Y., to Pleasant City, Fla., without touching a bolt, nut, spark plug or making a mechanical adjustment.

Three important facts are brought out in hundreds of testimonial letters received from Hudson owners: "Low gasoline and oil consumption"—"Wonderful mechanical efficiency"—"It rides as easy as the most expensive cars."

Remember the Hudson Roadster is not an imitation of a big car—it is a big car. It is big in design, in material, in general all-around value. Look at our price on extra equipment. Bosch magneto, Atlas top, Prestolite tank and rumble seat for $[illegible] extra.

coupon to-day will bring you our complete information about both the ng Car and Hudson Roadster.

T OUT AND MAIL. G. L.

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Detroit, Mich.
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Hudson Motor Car Company, Detroit, Michigan

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Advantages of Low Tension Magneto and Make-and-Break Spark as Employed on the Model H

STUDEBAKER

"The Automobile with a reputation behind it."

WE have amply demonstrated, during the past season, that the ignition system as employed on our new Model H Car is absolutely reliable and effective.

The Simms-Bosch low tension magneto, which we use to furnish the current for our make-and-break spark, gives an extremely large and hot spark in each cylinder.

This is the identical type of magneto employed on the winning cars in the recent Vanderbilt international road races, and when gear driven, as in the Studebaker car, we have found its service to be practically perfect.

In furnishing the current for the make-and-break spark with our low tension magneto, less than two feet of wiring is required, short circuiting troubles are avoided and spark-plug annoyances are eliminated.

All the controlling mechanism of our ignition system is located on the top of cylinders and is readily accessible.

Every part of the Studebaker Car is the result of long and painstaking experience. Our improvements have all been for better service, not for exploitation.

See our exhibit at the New York and Chicago shows.

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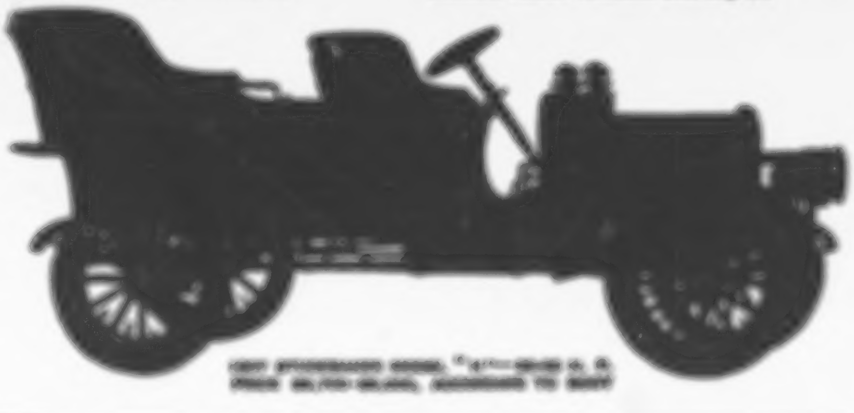

1907 STUDEBAKER MODEL "H"—[illegible] H. P.
PRICE [illegible], ACCORDING TO BODY

The Car De

Power 30-60 H. P. Carries Seven.

IT would only be dealing with absolute facts to announce
combination of those features which suggest
standard in automobile design, with which
modern methods and devices as applied to
and accessories as find place only in a car of this

And doubtless one of the best examples of its high
patented rear axle system. Here is provided the
Rear Axle such as used on high powered cars with
of shaft drive as well. It is, in fact, a unique
systems—strength, rigidity, cleanliness, smoothness of positive
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It stands out pre-eminently as one of the
It has solved the problem of direct system of its drive.
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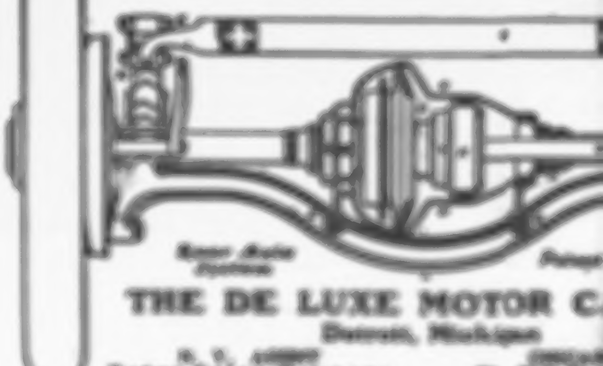
The Car De Lu

Complete information for the asking,



THE DE LUXE MOTOR C

Detroit, Michigan

N. Y. AGENT
Motor Sales Company
1775 Broadway

DYNAMO AND MOTOR COMBINED.— [illegible]

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"MECHANICAL PERFECTION"

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Dealers endorse the car they represent.
We stand by the car we make—
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No other car has as yet shown all the good features of the MOLINE at the same price—or near it.

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Quietness and Power of Motor.
Ease and convenience of control.
Absolute freedom from troublesome complications.
Easy riding qualities, the result of correct design and proportion of springs.
Luxuriousness of finish and upholstery.

$2,000 Accident

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MOTOR A

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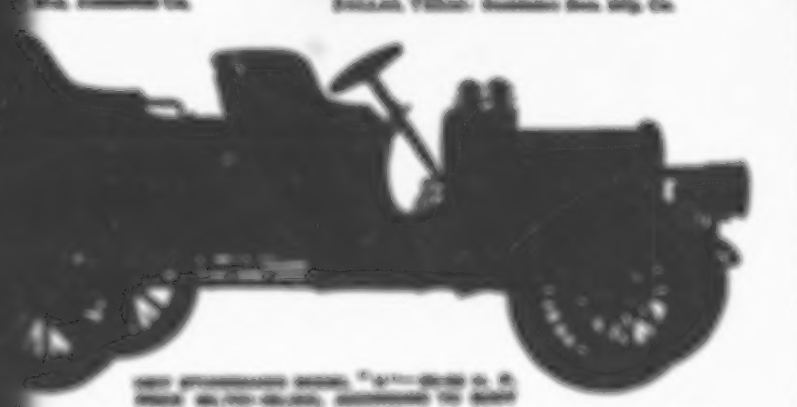

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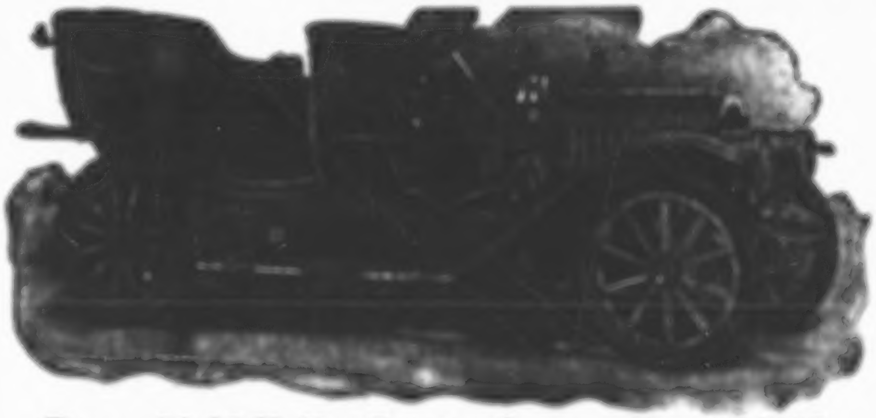
The Car De Luxe



Power 50-60 H. P. Carries Seven. Price $4750

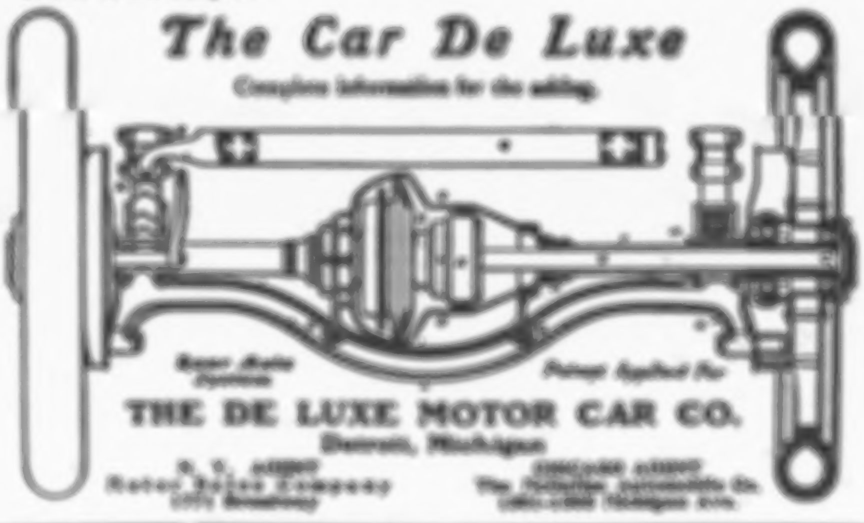
IT would only be dealing with absolute facts to pronounce THE CAR DE LUXE a rare combination of those features which usage and successful operation have made standard in automobile design, with which have been incorporated many of the more modern methods and devices as applied to mechanism, in addition to such appointments and accessories as find place only in a car of this exclusive class.

And doubtless one of the best examples of this high order of excellence is that **patented rear axle system.** *Here is provided all the strength of the Solid I-Beam Rear Axle such as used on high powered cars with double chain drive, and the advantages of shaft drive as well. It is, in fact, a unique combination of the best features of both systems—strength, rigidity, cleanliness, smoothness and positive drive. Hence the noise and numerous disadvantages of the Chain drive are entirely overcome, and the replacing of rear axles (a comparatively common occurrence with shaft-driven cars) will not be experienced by users of* THE CAR DE LUXE.

There can be no question as to the absolute superiority of this system.
It stands out pre-eminently as one of the greatest improvements in motor car design.
It has solved the problem of direct system of final drive.
It is to be had only on

The Car De Luxe

Complete information for the asking.



THE DE LUXE MOTOR CAR CO.
Detroit, Michigan

N. Y. AGENT
Motor Sales Company
[illegible] Broadway

CHICAGO AGENT
The [illegible] Automobile Co.
[illegible] Michigan Ave.

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We stand by the car we make—
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tion—or near it.

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of finish and upholstery.

$2,000 Accident Policy Absolutely Free

MOTOR AGE

WE have amply demonstrated, during the past season, that the ignition system as employed on our new Model H Car is absolutely reliable and effective.

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No other car has as yet shown all the good features of the MOLINE at the same price—or near it.

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Quietness and Power of Motor.
Ease and convenience of control.
Absolute freedom from troublesome complications.
Easy riding qualities, the result of correct design and proportion of springs.
Luxuriousness of finish and upholstery.
Good lines of body.
Equipment includes Gas Lamp and Tools in canvas case.

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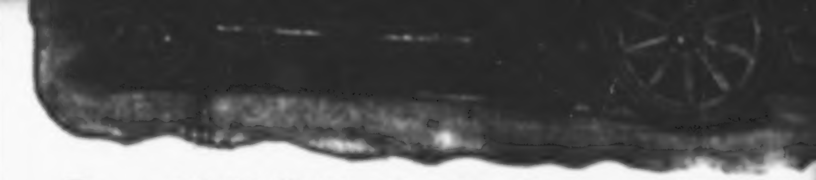

Power 50-60 H. P. Carries Seven. Price $475

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And doubtless one of the best examples of this high order of excellence [illegible] **patented rear axle system.** Here is provided all the strength of the Soli[illegible] Rear Axle such as used on high powered cars with double chain drive, and the a[illegible] of shaft drive as well. It is, in fact, a unique combination of the best feature[illegible] systems—strength, rigidity, cleanliness, smoothness and positive drive. Hence the [illegible] numerous disadvantages of the Chain drive are entirely overcome, and the replaci[illegible] axles (a comparatively common occurrence with shaft-driven cars) will not be exp[illegible] by users of THE CAR DE LUXE.

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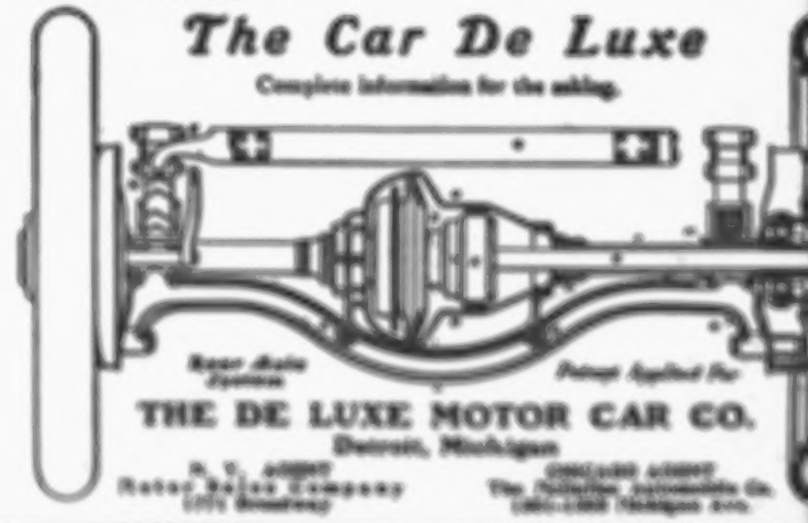

The Car De Luxe

Complete information for the asking.

Rear Axle System

Patent Applied For

THE DE LUXE MOTOR CAR CO.
Detroit, Michigan

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Motor Sales Company
[illegible] Broadway

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The [illegible] Automobile Co.
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February 7 for Coliseum-Armory, Chicago Show

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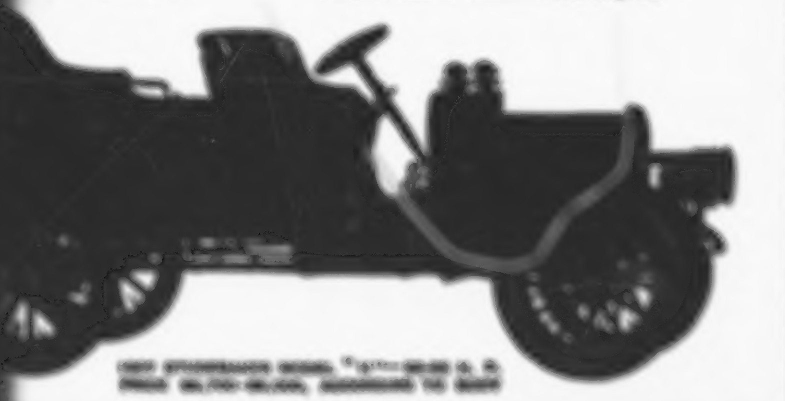

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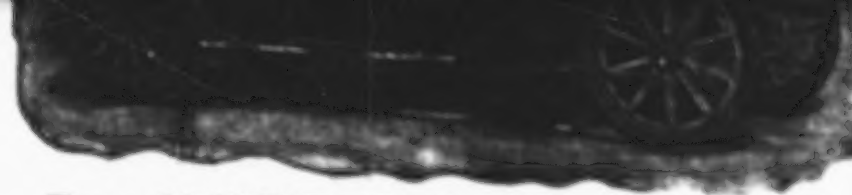

Power 50-60 H. P. Carries Seven. Price $4750

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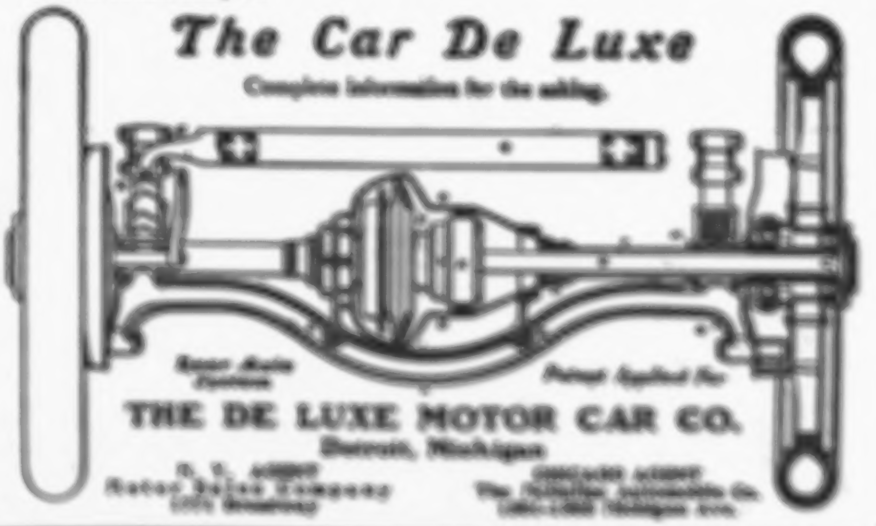

The Car De Luxe
Complete information for the asking.

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Detroit, Michigan

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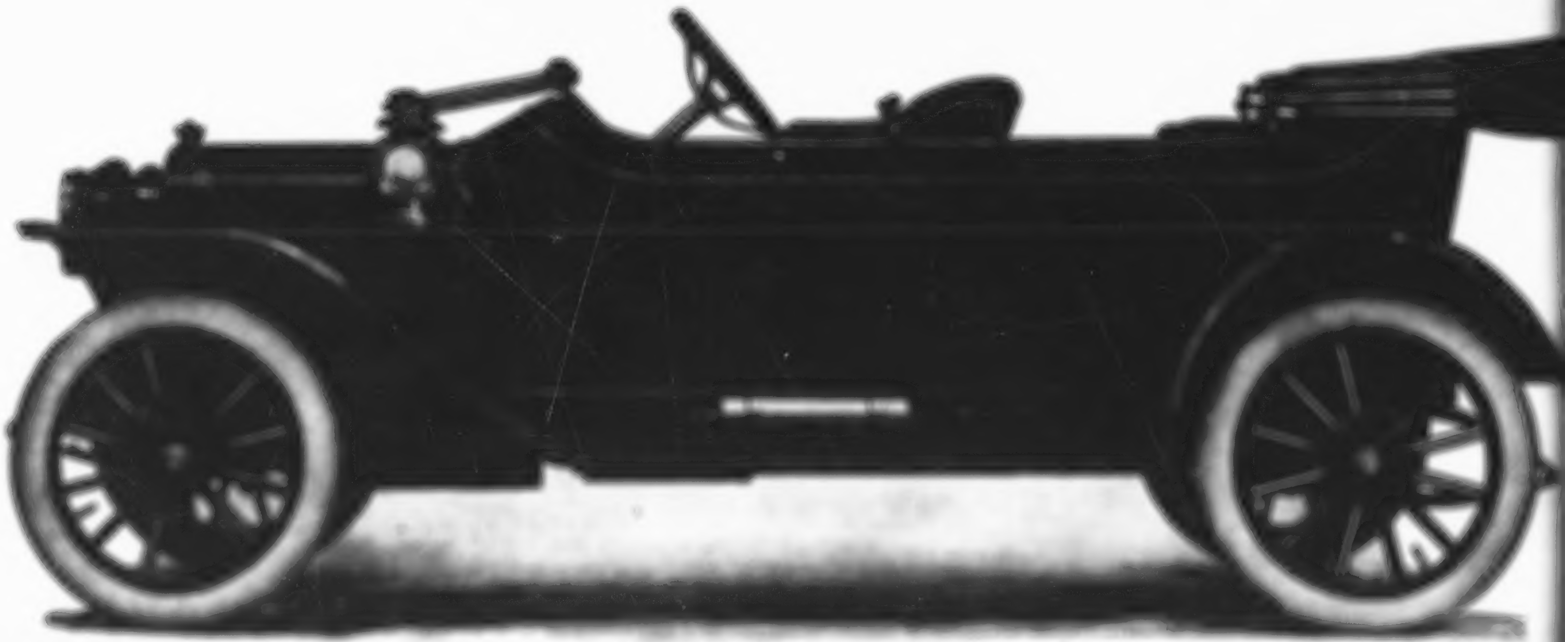

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F. O. B. Detroit

Fully equipped with top, side-curtains, windshield, 2 g oil lamps, horn, tools and tire repair kit---long strok 3 speeds---enclosed valves---Bosch magneto.

Seven R-C-H Features—and The Cash Value on a Car

We want to place the wonderful value of the R-C-H before y crete form—we want you to know, as we do, that nothing approac ever before been offered to motor-car buyers---that it is in a class o

So we've listed below seven of the special features of the R-C-H which are found in no other car at near the price. And we've placed after each feature a sum which represents an estimate of the amount which it adds to the value of a car—or the amount which its absence should deduct from the cost of a car. You'll say that these features are they are; but we have made the figures low manufacturers every possible advantage in th

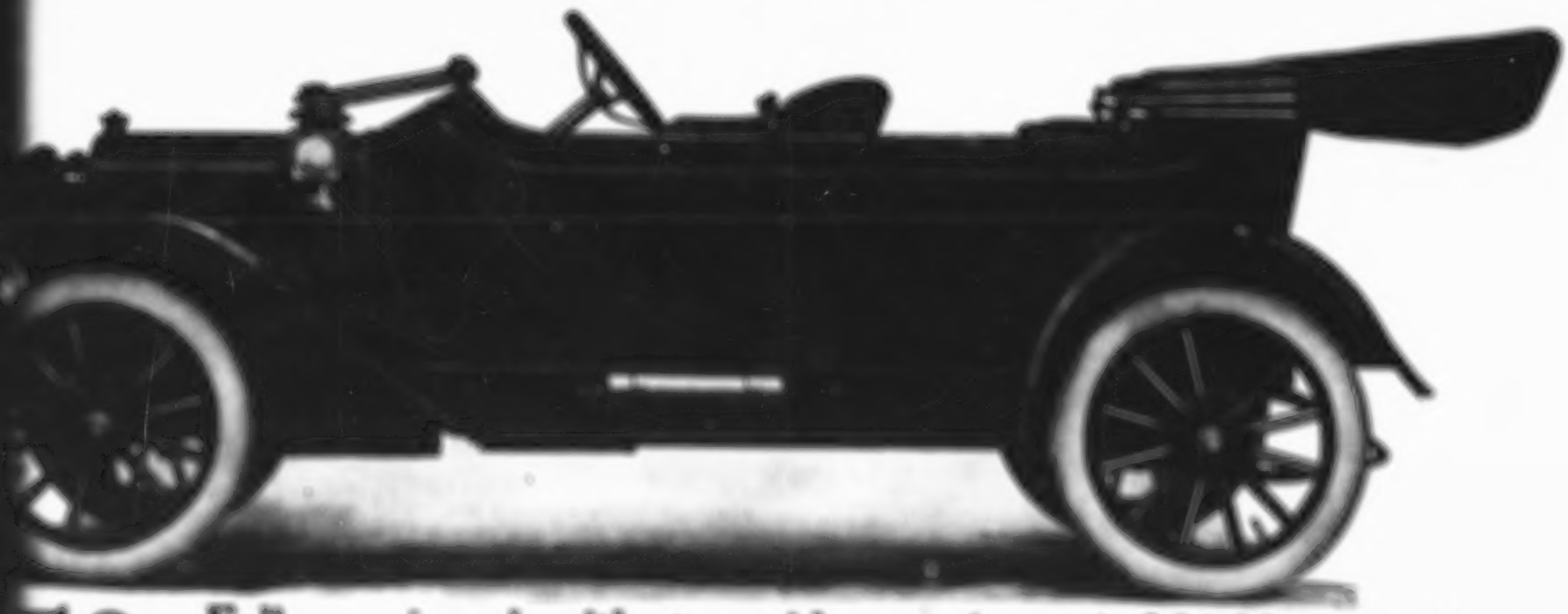
Note the astounding totals—and use test and a guide in your choice of a car for

1. Full five-passenger body with the latest European ideas in design and finish (not used in any other American car costing less than $4,000) . . . .
2. Really long-stroke motor—that is, with stroke long in relation to bore—3 1-4 x 5—powerful, efficient (used on high-grade European cars costing up to $5,000) . .
3. The use of 130 drop forgings (more than on any other car in the world irrespective of price), both forgings and other materials of the highest grade of mechanical workmanship. Accessibility and complete interchangeability of all parts. (These features are found only in other cars costing $1,500 or more) . . . .
4. Three speeds forward, one reverse, with sliding gears (found in no other car under $900) . . . .
5. Long wheelbase and special spring suspension, insuring easy riding qualities found on no other car under $1,100 . . . .
6. Full equipment of top, windshield, lamps, etc., with 3 1-2 inch tires (found in no

VERTISEMENT

R-C-H

"Twenty-Five"
5-Passenger Touring Car
110-Inch Wheelbase



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Detroit

Fully equipped with top, side-curtains, windshield, 2 gas lamps, 3 oil lamps, horn, tools and tire repair kit---long stroke motor---3 speeds---enclosed valves---Bosch magneto.

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Note the astounding totals—and use these figures as a test and a guide in your choice of a car for 1912:

1.	Full five-passenger body with the latest European ideas in design and finish (not used in any other American car costing less than $4,000)	$200
2.	Really long-stroke motor—that is, with stroke long in relation to bore—3 1-4 x 5—powerful, efficient (used on high-grade European cars costing up to $5,000) . .	200
3.	The use of 130 drop forgings (more than on any other car in the world irrespective of price), both forgings and other materials of the highest grade of mechanical workmanship. Accessibility and complete interchangeability of all parts. (These features are found only in other cars costing $1,000 or more)	200
4.	Three speeds forward, one reverse, with sliding gears (found in no other car under $900)	50
5.	Long wheelbase and special spring suspension, insuring easy riding qualities found on no other car under $1,100	100
6.	Full equipment of top, windshield, lamps, etc., with 3 1-2 inch tires (found in no	

$850

F. O. B. Detroit

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3.	The use of 130 drop forgings (more than on any other car in the world irrespective of price), both forgings and other materials of the highest grade of mechanical workmanship. Accessibility and complete interchangeability of all parts. (These features are found only in other cars costing $1,400 or more)	**200**
4.	Three speeds forward, one reverse, with sliding gears (found in no other car under $900)	**50**
5.	Long wheelbase and special spring suspension, insuring easy riding qualities found on no other car under $1,100	**100**
6.	Full equipment of top, windshield, lamps, etc., with 3 1-2 inch tires (found in no other car under $900)	**50**
7.	Highest grade magneto made—perfect magneto satisfaction on any car is easily worth	**50**
		$850

Now then. Each one of these features, by reason of its greater ease, greater efficiency or greater durability, is well worth on any car the sum we have set opposite it by all accepted standards of value. Ninety-nine motorists out of a hundred would cheerfully say in each case: "Yes, I'd sooner pay the difference and have that." Yet the sum of these fair valuations just equals the price of the R-C-H.

Very well. Then you're offered any car, find out if it lacks any or all of these special features. If it does, deduct their value from the price asked. But be fair. Add a reasonable sum for any features of value—if you find any—that the R-C-H hasn't got. Then compare the respective prices of the R-C-H and the other.

That's the way we want to sell the car.

Write for folder, or call at nearest branch.

Dealers: Write—or better still, wire. We still have a litt territory.

See these wonderful cars at Booth B—first floor, Grand C Show, January 10th to 17th.

Canadian Prices: R-C-H 2-passenger roadster, $850; equip passengers, $925. R-C-H 5-passenger touring car, $1,050. R-C coupe, $1,300. All prices F. O. B. Windsor, Ont., duty paid.

R. C. HUPP, Manufacturer, 132 Lycaste St., Detroit,

Distinct from and having no connection whatever with Hupp Motor Car Co.

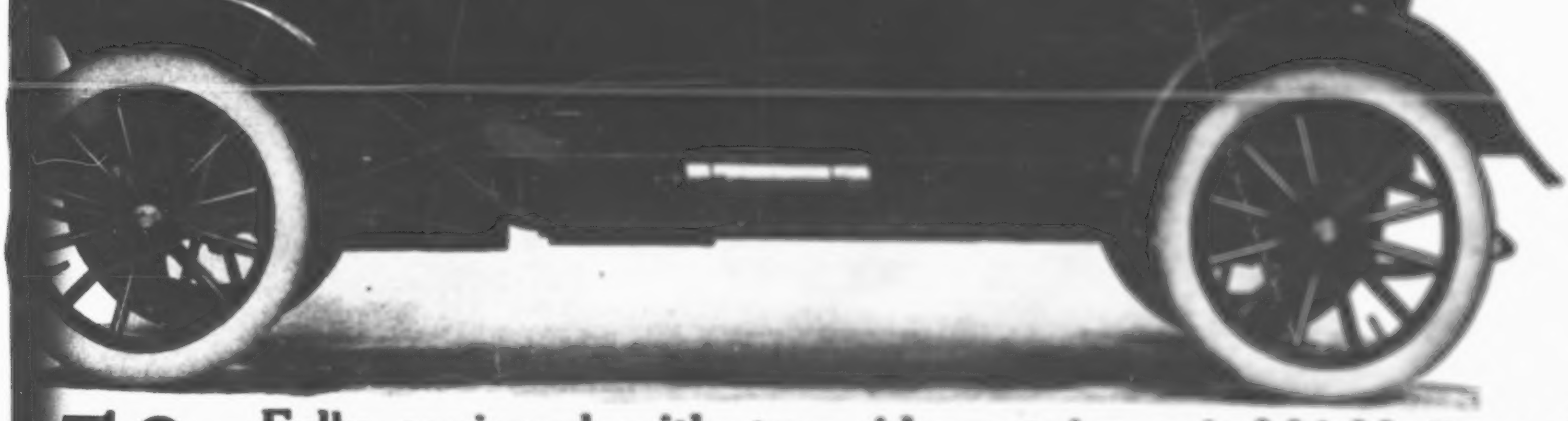
Branches:

BOSTON, [illegible] Boylston St.
BUFFALO, [illegible] Main St.
CLEVELAND, [illegible] Euclid Ave.

CHICAGO, [illegible] Michigan Ave.
DENVER, [illegible] Broadway
DETROIT, Woodward and Warren Aves.

KANSAS CITY, [illegible] Main St.
LOS ANGELES, [illegible] So. Olive St.
MINNEAPOLIS, [illegible] Nicollet St.

NEW YORK, [illegible] Broadw
PHILADELPHIA, [illegible] No.
ATLANTA, [illegible] Peachtree



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4.	Three speeds forward, one reverse, with sliding gears (found in no other car under $900)	50
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HUPP, Manufacturer, 132 Lycaste St., Detroit, Mich.

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BOSTON, 563 Boylston St.
BUFFALO, 1225 Main St.
CLEVELAND, 2122 Euclid Ave.
CHICAGO, 2515 Michigan Ave.
DENVER, 1520 Broadway
DETROIT, Woodward and Warren Aves.
KANSAS CITY, 3501 Main St.
LOS ANGELES, 816 So. Olive St.
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ATLANTA, 548 Peachtree St.

This is an experimental booklet intended to help young people learn basic principles and concepts of mechanics and technology.

It is hoped that this booklet will be useful to teachers to stimulate interest in reading and in related mechanical subject matter areas.

This booklet is part of the curriculum and materials for teaching basic vocational talents being prepared under Contract No. OE-5-85-023 with the United States Office of Education.

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Comments and suggestions will be appreciated. Address all correspondence to:

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